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Petram, L.O.

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THE WORLD'S FIRST STOCK EXCHANGE

How the Amsterdam market for Dutch East India Company shares became a modern securities market, 1602-1700

Lodewijk Petram

Frontcover: Gerrit Adriaensz. Berckheyde, Town hall on Dam Square (1672), detail, Rijksmuseum Amsterdam

THE WORLD'S FIRST STOCK EXCHANGE

How the Amsterdam market for Dutch East India Company shares became a modern securities market, 1602-1700

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Lodewijk Otto Petram

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Promotor: prof. dr. L. Noordegraaf

Copromotor: dr. C.M. Lesger

Overige leden: dr. O.C. Gelderblom
dr. J. Goggin
dr. M.C. 't Hart
prof. dr. H.J. den Heijer
prof. dr. A. de Jong
em. prof. dr. L. Neal
prof. dr. H.F.K. van Nierop

Faculteit der Geesteswetenschappen

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LIST OF ABBREVIATIONS

BT	Bibliotheca Thysiana, Leyden
DAS	J.R. Bruijn, F.S. Gaastra and I. Schöffer, *Dutch-Asiatic shipping in the 17th and 18th centuries* (3 vols., The Hague 1979-87).
EIC	English East India Company
NA	Nationaal Archief, The Hague
PA	Persmuseum Amsterdam
PIG	Portugees-Israëlitische Gemeente
RAU	Het Utrechts Archief
SAA	Stadsarchief Amsterdam
VOC	Verenigde Oost-Indische Compagnie
WIC	West-Indische Compagnie

Note on currency

The Dutch currency, the guilder (*f*), was divided into 20 *stuivers*; each *stuiver* was sub-divided into 16 *penningen*. In addition to guilders, the Dutch also used pounds Flemish (pVl). The nominal value of VOC shares was, for example, often expressed in pounds Flemish. One pound Flemish equaled six guilders. To make currency figures more easily comprehensible, I have converted everything into guilders divided into 100 cents.

INTRODUCTION

'This little game could bring in more money than contracting charter parties for ships bound for England', wrote Rodrigo Dias Henriques to Manuel Levy Duarte on 1 November 1691.[1] Dias Henriques was referring to the 'game' of trading shares of the Dutch East India Company (Verenigde Oost-Indische Compagnie, VOC, founded 1602) and its derivatives* on the Amsterdam securities market. He acted as exchange agent for Levy Duarte and performed a high number of transactions on his account. The most notable feature of the exchange dealings of these Portuguese Jewish merchants was that they consisted solely of very swift trades; Dias Henriques made sure to always settle the transactions within a few days or a fortnight at most. He actively speculated on short-term share price* movements, while at the same time making sure that his portfolio did not become too risky – and, judging by his quote, he was rather good at it. Dias Henriques could perform these swift dealings because by the end of the seventeenth century, a very active secondary market* for securities existed in Amsterdam.

Modern securities markets have two functions: price discovery* and the provision of liquidity*. The interaction of traders in the marketplace, in other words, determines the price of the assets that are traded on the market. The liquidity function means that as a result of the concentration of traders in the marketplace, traders can easily buy or sell assets. Straightforward as these market functions may seem, they play a very important role for investors: they allow investors to reallocate their asset holdings at low cost, enabling them to manage their financial risks according to their personal preferences.[2] Securities markets thus provide major advantages to investors.

The secondary market for VOC shares became the first securities market in history that provided these advantages to investors. Hence it was in seventeenth-century Amsterdam that 'the global securities market began to take on its modern form'.[3] Using hitherto unexplored source material from the archives of the VOC, judicial institutions of the Dutch Republic and merchants who were active on the securities market,

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[1] Dias Henriques to Levy Duarte, 1 November 1691, SAA, PIG, inv. nr. 677, pp. 897-8.
* Words market with an asterisk (*) are further explained in Appendix C – Glossary.
[2] Maureen O'Hara, 'Presidential address: Liquidity and price discovery', *Journal of finance* 58 (2003) 1335-1354, there 1335.
[3] Ranald C. Michie, *The global securities market: a history* (Oxford 2006) 26.

this book analyzes how the secondary market for VOC shares could develop into the world's first modern securities market.

Context, historiography and theory

How the secondary market for VOC shares started off in the first decade of the seventeenth century is well known.[4] In 1602, the States General of the Dutch Republic granted the VOC a charter for a period of 21 years, with the provision that an interim liquidation would follow after ten years.[5] Inhabitants of the Dutch Republic were called upon to invest in the new company. The VOC thus became a privately-owned company in which the authorities of the Dutch Republic had a large say. The capital subscription was a great success: in Amsterdam alone, 1143 investors signed up for *f* 3,679,915.[6] According to a clause on the first page of the subscription book of the VOC, shareholders could transfer their shares to a third party. On this same page, the procedure for registering share transfers was laid down: the buyer and the seller should go to the East India house where the bookkeeper, after two company directors had approved the transfer, transferred the share from the seller's to the buyer's account in the capital book.[7]

These clear rules for ownership and transfer of ownership reduced investors' hesitancy about trading the valuable shares that existed only on paper. Secondary market trading therefore took a start immediately after the subscription books were closed.[8] However, the real incentive to trade shares emerged later. The directors of the VOC did not liquidate the company after ten years and at the end of the first charter, in 1623, they requested a prolongation of the charter, which the States General

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[4] See, particularly: Oscar Gelderblom and Joost Jonker, 'Completing a financial revolution: The finance of the Dutch East India trade and the rise of the Amsterdam capital market, 1595-1612', *The journal of economic history* 64 (2004) 641-672.

[5] For a general account of the founding of the VOC, see: J.A. van der Chijs, *Geschiedenis der stichting van de Vereenigde O.I. Compagnie en der maatregelen van de Nederlandsche regering betreffende de vaart op Oost-Indië, welke aan deze stichting voorafgingen* (Leyden 1857). This book also contains a transcription of the 1602 charter. The text of the first charter can also be found online: http://www.vocsite.nl/geschiedenis/octrooi.html An English translation is also online available:
http://www.australiaonthemap.org.au/content/view/50/59

[6] The total capital stock of the VOC amounted to *f* 6,429,588; Middelburg contributed *f* 1,300,405 (20%), Enkhuizen *f* 540,000 (8%), Delft *f* 469,400 (7%), Hoorn *f* 266,868 (4%) and Rotterdam *f* 173,000 (3%): Henk den Heijer, *De geoctrooieerde compagnie: de VOC en de WIC als voorlopers van de naamloze vennootschap* (Deventer 2005) 61. According to the historical purchasing power calculator of the International Institute of Social History in Amsterdam (see http://www.iisg.nl/hpw/calculate.php), the value of the 1602 subscription would amount to almost €100 million today.

[7] A facsimile and transcript of the first page of the subscription book can be found in: J.G. van Dillen, *Het oudste aandeelhoudersregister van de Kamer Amsterdam der Oost-Indische Compagnie* (The Hague 1958) 105-6.

[8] Gelderblom and Jonker, 'Completing'.

granted. Again, no intermediate liquidation took place. Consequently, the capital stock* of the VOC became *de facto* fixed.[9] In the end, the company would stay in business for almost two centuries and the capital stock remained fixed during the entire period. Since investors generally do not want their money to be locked up for that a long period of time, they used the secondary market to sell their shareholdings to a third party.

The fixed capital stock of the VOC was unique. Shipping companies in late-medieval Italy and, from the mid-sixteenth century onwards, also in England and the Low Countries were often equity*-financed, but these companies were always liquidated after a single expedition to the destination. The same went for the *Voorcompagnieën*, the predecessors of the VOC that had equipped expeditions to the East Indies from 1594 onwards. The proceeds of the liquidation were divided among the investors. In many cases, the company was reestablished immediately after liquidation and participants were given the opportunity to reinvest their money in the new partnership. Consequently, there was little need for secondary market trading, because after liquidation, investors could decide not to reinvest. Investors knew that they could always get their money back within a few years' time.[10] Likewise, it took until the end of the seventeenth century before a secondary market for shares emerged in England.[11] Before that time, there were no joint-stock companies with a sufficiently large fixed capital to get the development of a securities market going.[12] The capital stock of the English East India Company (EIC, founded 1600), for example, only became fixed in 1657. Before that time, the EIC repeatedly issued new stock to fund its fleets; the EIC was thus basically a series of separate companies that worked together as the EIC.[13]

Remarkably, already in the later Middle Ages, secondary markets for public debt had emerged in Italian city states. Venice, Genoa and Florence were the first

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[9] Den Heijer, *De geoctrooieerde compagnie*, 59, 63.

[10] Oscar Gelderblom, Abe de Jong and Joost Jonker, "An Admiralty for Asia. Isaac le Maire and conflicting conceptions about the corporate governance of the VOC', in: Jonathan G.S. Koppell (ed.), *The origins of shareholder advocacy* (Basingstoke, forthcoming 2011).

[11] Anne L. Murphy, *The origins of English financial markets. Investment and speculation before the South Sea Bubble* (Cambridge 2009).

[12] Ron Harris, *Industrializing English law: entrepreneurship and business organization, 1720-1844* (New York 2000) 117-8, 120-1, 127.

[13] The fixed capital stock of the EIC in 1657 amounted to £793,782. W.R. Scott, *The constitution and finance of English, Scottish and Irish joint-stock companies to 1720* II *Companies for foreign trade, colonization, fishing and mining* (Cambridge 1912) 129, 192. Michiel de Jongh, 'De ontwikkeling van zeggenschapsrechten van aandeelhouders in de 17e en 18e eeuw', *Working paper* (2009). At the exchange rate of 1654 (the 1657 rate is unavailable), £793,782 equaled approximately *f* 8,250,000: N.W. Posthumus, *Nederlandsche prijsgeschiedenis* I: *Goederenprijzen op de beurs van Amsterdam 1585-1914. Wisselkoersen te Amsterdam 1609-1914* (Leyden 1943) 592.

states to consolidate their public debt – a revolution in public finance, because it eased the process of underwriting new debt issues.[14] Venice, for example, consolidated all its outstanding debt in a so-called *monte* in 1262. The original obligations were converted into shares in the *monte* and investors could subsequently transfer the title to these shares by way of assignment. Secondary markets came into being, but these markets did not have the characteristics of a free market, since new loans were often forced loans. Hence, the decision to invest was not taken by the investors themselves. Moreover, the number of transfers typically rose when a new forced loan was announced, which indicates that some shareholders were forced to dump their shares on the secondary market to get the liquidity needed to pay for the upcoming debt issue.[15] This innovation in public finance failed to spread to other parts of Europe, however. In the Low Countries, the provinces kept issuing short-term debt and it would take until at least 1672 before secondary trade of any significance took place in government debt in the Dutch Republic.[16] The English government recognized the advantages of secondary market trading in the early eighteenth century. It started to use the secondary market to sell its debt in transferable annuity obligations in the 1720s.[17]

This short overview has identified the factors that led to the emergence of a secondary market for VOC shares in the Dutch Republic. Very little is known about the subsequent development of the market, however. Smith studied the trade in derivatives, focusing on official regulations and pamphlets that addressed the share trade, and Gelderblom and Jonker discussed the history of derivatives trading on the Amsterdam exchange from 1550 to 1650, mentioning the emergence of several types of derivatives and analyzing similarities and differences in the trade in equity derivatives and forward* contracts that were used in the grain trade.[18] Apart from these

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[14] See, particularly: Reinhold C. Mueller, *The Venetian money market: banks, panics, and the public debt, 1200-1500* (Baltimore 1997).

[15] Julius Kirshner, 'Encumbering private claims to public debt in renaissance Florence', in: Vito Piergiovanni (ed.), *The growth of the bank as institution and the development of money-business law* (Berlin 1993) 19-76. Meir Kohn, 'The capital market before 1600', *Dartmouth College working paper* nr. 99-06 (1999) 10-11.

[16] James D. Tracy, *A financial revolution in the Habsburg Netherlands: Renten and renteniers in the county of Holland, 1515-1565* (Berkeley 1985). Oscar Gelderblom and Joost Jonker, 'A conditional miracle. The market forces that shaped Holland's public debt management', *Working paper* (2010) 21, 24-7.

[17] Larry Neal, *The rise of financial capitalism: international capital markets in the Age of Reason* (Cambridge 1990) 10.

[18] M.F.J. Smith, *Tijd-affaires in effecten aan de Amsterdamsche beurs* (The Hague 1919). Oscar Gelderblom and Joost Jonker, 'Amsterdam as the cradle of modern futures and options trading, 1550-1650', in: William N. Goetzmann and K. Geert Rouwenhorst (eds.), *The origins of value: the financial innovations that created modern capital markets* (Oxford 2005) 189-205. The article 'Completing', by the same authors, has been mentioned above. This article focused on the funding of East India trade in the Dutch Republic

studies, most economic historians merely marveled at the sophistication of the market in the late seventeenth century. They used Josseph de la Vega's high-flown description of the share trade in *Confusión de confusiones,* the famous account of the share market dating from 1688[19], as a starting point for their work.[20] Others tried to catch the significance of the market in very general phrases. Barbour, for example, wrote that 'Amsterdam gave [existing financial instruments] more precise formulation, greater flexibility and extension, and used them effectively over a wider field.'[21] Braudel's interpretation of the financial developments in Amsterdam was that 'ce qui est nouveau à Amsterdam, c'est le volume, la fluidité, la publicité, la liberté speculative des transactions. Le jeu s'y mêle de façon frénétique, le jeu pour le jeu.'[22] Superficial as these observations may seem, they touch upon some very important aspects of the market. The flexibility and enhanced formulation of the financial instruments meant that investors could use them to manage their financial risks. Moreover, the market could fulfill its core functions price discovery and liquidity only because of the increase in trading activity. This raises the questions which factors led to the sophistication of financial instruments in Amsterdam? And what caused trading activity to increase on the Amsterdam market?

In this book, the development of the market will be examined from an institutional perspective. In the most widely used definition, institutions 'are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction.'[23] Institutions consist of formal and informal rules. Informal rules are not enforceable by law; they mostly depend on social sanctions for their enforcement. Formal institutions, such as laws and official regulations, are enforced by the

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and argued that the emergence of a secondary market for shares completed the financial revolution of the sixteenth century, as has been advanced by James D. Tracy: Tracy, *A financial revolution*.

[19] Dutch translation of De la Vega's work, with a good introduction by M.F.J. Smith: Josseph Penso de la Vega, *Confusión de confusiones* (1688), M.F.J. Smith (ed.) (The Hague 1939). The best English (abridged) edition: Josseph Penso de la Vega, *Confusion de confusiones by Joseph de la Vega 1688. Portions descriptive of the Amsterdam Stock Exchange* (1688) Hermann Kellenbenz ed. (Cambridge 1957).

[20] Jonathan Israel, amongst others, relies heavily on De la Vega, for example in: Jonathan I. Israel, 'Jews and the stock exchange: the Amsterdam financial crash of 1688', in: idem (ed.), *Diasporas within a diaspora: Jews, Crypto-Jews and the world maritime empires (1540-1740)* (Leyden 2002) 449-87. Also: Charles Wilson, *Anglo-Dutch commerce and finance in the eighteenth century* (Cambridge 1941, reprinted in 1966). Geoffrey Poitras, *The early history of financial economics, 1478-1776: from commercial arithmetic to life annuities and joint stocks* (Cheltenham 2000) 315, 385-7.

[21] Violet Barbour, *Capitalism in Amsterdam in the seventeenth century* (Baltimore 1950) 142.

[22] Fernand Braudel, *Les jeux de l'échange. Civilisation matérielle, économie et capitalisme, XVe-XVIIIe siècle* II (Paris 1979) 81-2.

[23] Douglass C. North, *Institutions, institutional change and economic performance* (Cambridge 1990) 3.

state. The institutional framework of markets generally consists of a combination of formal and informal institutions.

The theory of institutional economics argues that institutional innovation takes place because economic actors always search for ways to reduce transaction costs. Put another way, economic actors always search for ways to obtain benefits from economic interaction at the lowest transaction costs possible.[24] Acemoglu, Johnson and Robinson divide transactions costs into three categories: '1) those that increased the mobility of capital; 2) those that lowered information costs; and 3) those that spread risk.'[25] These three categories will be addressed in this study. I will show how the development of a sophisticated enforcement mechanism ensured traders that their transactions would be consummated by the market. Because traders had a high level of certainty that their trades would be completed, they were more inclined towards trading, which increased the mobility of capital. The market also lowered information costs. The use of intermediaries and particularly the creation of trading clubs, whose participants could easily monitor each other's behavior, meant that less effort was needed to check a possible counterparty's creditworthiness. Furthermore, as a result of the high trading activity, the share price was constantly updated to the beliefs of the trading populations.[26] This reduced the need for investors with long-term investment horizons to find price-relevant information; they could rely on the prices quoted on the exchange. Lastly, the range of derivative instruments available to the traders by the second half of the seventeenth century allowed them to mitigate the risk of their investment portfolios.

Scope and structure

The scope of this book is limited to the seventeenth-century Amsterdam market for VOC shares. The focus on the seventeenth century flows, in the first place, from the fact that it is widely known, mainly from De la Vega's work, that Amsterdam boasted

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[24] Sheilagh Ogilvie, '"Whatever is, is right"? Economic institutions in pre-industrial Europe', *Economic history review* 60 (2007) 649-684, there 656.

[25] North, *Institutions*, 125. Daron Acemoglu, Simon Johnson and James A. Robinson, 'Institutions as a fundamental cause of long-run growth', in: Philippe Aghion and Steven N. Durlauf (eds.), *Handbook of economic growth* (Amsterdam 2005) 385-472.

[26] According to Ross Levine, markets with high trading activity provide an incentive for traders to gather price-relevant information: 'Intuitively, with larger and more liquid markets, it is easier for an agent who has acquired information to disguise this private information and make money by trading in the market.' As a result, prices on liquid markets reveal relatively more information about the assets that are being traded. Ross Levine, 'Finance and growth: theory and evidence', in: Philippe Aghion and Steven N. Durlauf (eds.), *Handbook of economic growth* (Amsterdam 2005) 865-934, there 872.

a highly sophisticated securities market by the end of the seventeenth century, but the path of development towards becoming the first modern securities market has remained obscure. Secondly, a study on the seventeenth-century Amsterdam securities market provides new material for future research on the transfer of financial know-how from Amsterdam to London in the late seventeenth century. The London securities market started developing quickly from around 1688 onwards – shortly after the invasion and subsequent accession to the English throne of Dutch stadholder William III. Although Murphy has recently argued that the London market developed largely by itself, the timing of the stock market boom in London still suggests that the Dutch experience must have had some influence on the developments in England.[27] This book on the securities market in Amsterdam will aid new researchers in identifying to what extent the London financial markets profited from Dutch financial experience.

It is important to note that Amsterdam was not the only city in the seventeenth-century Dutch Republic where a secondary market for company equity existed. The organizational structure of the VOC, with six semi-independent chambers, resulted in the emergence of six separate markets. However, due to the smaller capital stock of the Middelburg, Enkhuizen, Hoorn, Delft and Rotterdam chambers, these peripheral markets experienced different development paths. Shares in these chambers were, of course, occasionally transferred, but what this study tries to unravel is how the transition took place from a market where company shares were occasionally transferred to a thriving securities market that provided its participants a range of financial services. This happened only in Amsterdam.[28] I will also pay some attention to Middelburg, however. The Middelburg chamber of the VOC had the second-largest capital stock and consequently, the development of the Middelburg market came closest to that of Amsterdam. As I will show in chapter 5, traders used the liquidity of the Middelburg market for arbitrage* purposes; they tried to be the first to use information available on the Amsterdam market for transactions on the Middelburg market and vice versa.[29] Finally, shares in the Dutch West India Company (WIC, founded 1623) were also traded on the secondary market. However, investors generally kept away from these shares. The disproportionately large government interference in the

[27] Murphy, *The origins of English financial markets*, 5.
[28] The development of the markets in equity of the smallest chambers stalled soon after the subscription of 1602. See chapter 2, section Divergent developments: Amsterdam and peripheral markets on page 68 ff.
[29] Cf. page 169 ff.

WIC made investors afraid that the company management would behave too opportunistically. Moreover, investors were well aware that the WIC was a financial disaster. I will therefore focus on the trade in VOC shares only.

My analysis of the development of the secondary market for VOC shares into the first modern securities market is structured in two parts. Part I treats the seventeenth-century history of the market in general. Part II explores in more detail how the market was organized.

Part I starts, in chapter 1, with a chronological overview of the key developments that shaped the market during the seventeenth century. Subsequently, chapter 2 analyzes long-term developments, such as the increase in trading activity on the market, the number of active traders, the dividend policy of the VOC and the diverging development of the Amsterdam market in comparison with the peripheral share markets in the Dutch Republic. The findings of part I show that after the important first decade of the century in which the market emerged, the Amsterdam market for VOC shares entered into a second stage of development in the period 1630-50; this stage brought about the transition into a modern securities market. The two principal developments during this period were a staggering increase in trading activity and the appearance of new groups of traders on the market.

Part II goes deeper into the developments that made the organization of risky financial transactions possible in a market that grew in size and became increasingly anonymous and hence answers the question how the market for VOC shares could develop into a modern securities market. Chapter 3 discusses the formal and informal institutions that guaranteed that traders lived up to their agreements. My argument is that the traders built a private enforcement mechanism on top of a formal legal framework. The private enforcement mechanism was needed because large parts of the forward trade were unenforceable by law. Because of the existence of a clear legal framework, which took shape through official regulations and court judgments in the first three decades of the seventeenth century, traders knew exactly which transactions were unenforceable by law. This awareness was key to the good functioning of the market: the traders recognized the risks of the forward trade and adjusted their dealings accordingly.

In chapter 4, I discuss how traders could use the market to manage and control their financial risks – this being the principal purpose of investors in modern financial markets. The chapter therefore explores the evolution of the various types of

transactions that were available on the market. Using data from private records of traders, I first focus on the way in which traders could adjust the level of counterparty risk* of their transactions. Thereafter, I show how traders used derivatives to leverage or mitigate the risk of their portfolios. The possibilities for risk management and control really took off after the entry of a large pool of speculators on the market. These speculators were specialized in trading risks and hence also enabled other investors to manage and control their risks.

Chapter 5 focuses on information. Financial information about the VOC was hard to come by on the market – the company did not publish financial statements – but investors nevertheless put their money in VOC shares. This chapter explores, on the basis of share traders' correspondence, how shareholders obtained information needed for their investment decisions and how the share price reacted to new information. My analysis shows how the market changed over the course of the century. In the early decades, the information that was publicly available on the exchange sufficed for the predominantly long-term investment strategies of the traders. The shift to more speculative trade later in the seventeenth century, however, resulted in the need for speculators to be the first to obtain relevant information. Due to the competition between traders, only those traders with private information networks could make short-term profits on the market. As a result, trading activity became increasingly concentrated in the hands of a relatively small number of 'professional' traders – traders whose main occupation was trading shares. This reduced transaction costs (both search costs and the costs of possible litigation), because these traders knew that their counterparties were all specialized traders who were familiar with the rules and the customs of the trade; the chance that they would not live up to their agreements was very small. This situation resembles present-day stock exchanges*, where only authorized dealers are allowed to trade; private individuals cannot access the exchange, but give their trading orders to a stockbroker. The developments on the secondary market for VOC shares in the second half of the seventeenth century thus transformed the securities market into the world's first stock exchange.

Sources

The capital ledgers of the Amsterdam chamber of the VOC have formed the starting point of the archival research for this book. Every shareholder had his own account, specifying the nominal value of his investment in the VOC and the amount of dividend

distributed on his share. Furthermore, the company bookkeeper registered all mutations (i.e. share transfers) on these accounts. The capital ledgers are available from 1628 onwards. For the first decade (1602-12), the transfer journal has survived, which together with the subscription book of 1602 yields the same data as the capital ledgers. I have taken five samples from the transfer data: 1609-11, 1636-41, 1664-7, 1672 and 1688.[30] The sample periods are geared to the availability of other sources, mostly from the archives of legal institutions. In these sources, data from years with a high number of share-trade-related conflicts are overrepresented. The last three sample periods witnessed large share price fluctuations and therefore also a relatively high number of conflicts. As a result of Isaac le Maire's attempts to bring the share price down, the period 1609-11 also yielded many legal data. Lastly, the period 1636-41 was chosen to bridge the gap between 1611 and 1664. Moreover, in this period, the share price rose steeply. The transfer ledgers allow for a check on whether this rise incited people to start participating in the market.

Even though the capital books list all share transfers that took place in the capital stock of the Amsterdam chamber of the VOC, they provide only a very limited picture of the secondary market for VOC shares as a whole. Share traders performed many transactions without ever going to the East India house to register a share transfer. In the first place, they tried to combine several spot transactions into a single share transfer. If, for example, trader A sold a share to B, and B sold a similar one to C, a single share transfer from A to C sufficed to settle both transactions. Trader B did not have to go to the East India house; he would only be involved in a money transfer with traders A and C. Another option for share traders was to contract a forward or option* transaction. These kinds of transactions could be settled without actually transferring a share. At or before the expiry date of the contract, the traders could come together to negotiate a money settlement or they could cancel out their contract with another contract. Hence, only part of the transactions on the market ended up in the official ledgers and the pairs of shareholders involved in a share transfer had not necessarily traded with each other.

The transfer data are nevertheless interesting. Firstly, they give information on the number of shareholders of the Amsterdam chamber of the VOC and the number of active shareholders (i.e. shareholders who occasionally transferred a share) in a

[30] Oscar Gelderblom and Joost Jonker moreover generously shared the transfer data (1602-11) they collected for their article 'Completing' with me. I have not used their data in this book, however.

given period. Secondly, the ledgers allow for an analysis of patterns in the trade. Even despite the shortcomings mentioned above, peaks in the number of share transfers will have coincided with peaks in the number of share transactions. Lastly, these capital ledgers are the only source that can be used to estimate the level of market activity. I will treat this issue in chapter 2.

To gain a more complete picture of the development of the market, I have supplemented the data from the capital ledgers with qualitative data from official institutions, Amsterdam notaries and judicial institutions, on the one side, and private archives on the other. The data from the notaries and the courts of law give information on all kinds of transactions performed on the market, but they must be treated cautiously. Traders went to a notary or started litigation only when their transaction went sour or when one of the parties feared that something could go wrong in the near future. In the case of lawsuits brought before one of the law courts of Holland, there was, of course, always a conflict of some kind. Consequently, the data from notarial deeds and court cases are biased; riskier transactions are more likely to be found in these sources. The data they yield are nonetheless very usable: they give information on the kinds of transactions performed on the market, the conditions of the contracts and the circumstances that could lead to conflicts. Additionally, the descriptions of the conflicts often give information on the number of traders involved in a single transaction and the way traders went about settling their contracts. Lastly, they usually mention the part played by intermediaries in negotiating the transaction.

I have focused my research in the notarial protocols on the same sample periods that were used for the capital ledgers. Almost all of the deeds dating from the first decade of the share trade were executed before notary Jan Fransz. Bruyningh, whose protocol happens to be very well represented in a notarial card index available in the Amsterdam City Archives. I have covered this period by solely using this card index. Naturally, I have also retrieved the cards for the rest of the seventeenth century. The card index thus also yielded the data for the periods 1636-41 and 1664-67. The selection criteria that were used in compiling this card index are unknown. As the representativeness of the cards in the index cannot be determined, the data the cards yield cannot be used as the basis for grand theses. This flaw does not stand in the way of my use of the card index, however. I have only collected circumstantial data from this source; mainly share prices and qualitative information on the kinds of transactions performed on the market.

The card index contains an increasingly smaller amount of data for the last thirty years of the seventeenth century. So, to complement these data, I have studied the entire protocol of one notary for the years 1672 and 1688: notary Adriaen Lock for 1672 and Dirk van der Groe for 1688. These notaries executed the bulk of the deeds related to the share trade.[31] This approach certainly does not cover all deeds relating to share transactions available in the protocols of Amsterdam's notaries, but it suffices for the purpose for which I use the data from this source.

For my research in courts' archives, I have used the name indices of the Court of Holland and the High Court. I have looked up court cases in which familiar names or Sephardic names appeared; familiar names being those names that also appear in notarial deeds or in the capital ledgers of the VOC. I have covered the Court of Holland's extended sentences for the entire seventeenth century and those of the High Court for the years before 1625 and after 1676 – thus covering the years in which most conflicts arose.[32] Using this approach, I am confident that I have seen the large majority of lawsuits concerning share transactions. The archives of the Court of Aldermen in Amsterdam have been lost, so it was not possible to study the cases that were brought only before this court. The extended sentences of the higher courts do give some information about the procedure before the local court, however, since litigants always mentioned how the court in Amsterdam had ruled in first instance.

Finally, I have used a number of private archives. Anthoine l'Empereur's papers in the Bibliotheca Thysiana in Leyden contain correspondence with his nephew in Amsterdam who informed him about the share trade and who performed transactions on his account. The Deutz family archive contains ledgers and journals of Joseph Deutz and his mother Elisabeth Coymans, who both participated actively in the share market. Joseph Deutz' great bookkeeping skills have provided insights in the more complicated transactions. Louis Trip's journals and ledgers have also survived. Jeronimus Velters kept letter books containing regular correspondence with share traders in Middelburg and informants from The Hague and overseas. Finally, the archives of the Portuguese-Jewish congregation in Amsterdam contain the papers of Jacob Athias and Manuel Levy Duarte, two Sephardic merchant jewelers. They kept

[31] I have, of course, also glanced over the protocols of several other notaries to arrive at this conclusion. Lock was no longer active as a notary in 1688. I have also gone through Van der Groe's protocol of 1672, but this yielded far less data than his 1688 protocol, indicating that he took over Lock's position as prime notary providing services to share traders after Lock quit his profession.
[32] Conflicts from 1672 would not have come up before the High Court before 1676.

ledgers of their activities in share trading clubs in the 1680s and Levy Duarte also saved his correspondence with his exchange agent Rodrigo Dias Henriques for some years in the 1690s.

These private individuals are not representative for the trading community as a whole. The wealth of traders like Deutz and Trip, for example, enabled them to frequently act as moneylenders in repo* transactions. As a result, their ledgers show a high level of activity on the share market, but their dealings are not typical for the average market participant. Moreover, it must be kept in mind that share traders' correspondence reveals the attitudes only of the individuals who wrote the letters. I will therefore once again be cautious about treating this data as being representative for the secondary market for VOC shares as a whole.

This book will end with an epilogue, in which I relate my findings to Josseph de la Vega's famous *Confusión de confusiones*. His, at first sight rather cryptic, remark 'sabed que ha traçado la necessidad hazér deste negocio juego'[33] ['please note that this trade became a game out of necessity'], in the first fictitious dialogue, turns out to encompass the main argument of this study.

[33] De la Vega, *Confusión de confusiones*, 4 (p. 21 in the 1688 edition).

PART I

TAKING THE MEASURE OF THE MARKET

1 A CHRONOLOGY OF THE MARKET

Introduction

The aim of this chapter is to give a general overview of the development of the secondary market for VOC shares. For that purpose, it discusses the main events that shaped the market in chronological order. Naturally, this overview starts with the subscription of 1602 and the basic rules for share transfers. Thereafter, the introduction of derivatives, the bear-trading* syndicate of Isaac le Maire, trading locations, the first dividend distributions, the relation between the company and its shareholders, the role of market makers and brokers, the growing participation of Portuguese Jews and the introduction of trading clubs will be discussed. This overview will show, and the long-term analysis of chapter 2 will corroborate this finding, that the development of the market gained momentum in the period 1630-50. In these two decades, new groups of investors started participating in the market and the market activity increased considerably. Investors now used the market because of the financial services it provided rather than because they were interested in the East India trade.

1602 – The subscription

The States General of the Dutch Republic granted the VOC its charter in March 1602.[1] The charter invited the inhabitants of the United Provinces to subscribe to the capital stock of the new company. The company's registers would be open for subscriptions from April 1 until August 31 in six different cities: Amsterdam, Enkhuizen, Hoorn, Delft and Rotterdam in the province of Holland and Middelburg in Zeeland, the seats of the six semi-independent chambers that together formed the VOC. The chambers were independent in the sense that each had its own management and fitted out its own ships, which sailed in combined fleets (i.e. together with the ships of the other chambers) to the East Indies and back. Once they had returned to the Dutch Republic, they went back to the chamber that had equipped them. Hence, each chamber received its own cargo and subsequently organized its own auction of the imported goods. The proceeds of the individual chambers, however, were added together and then allocated back to the chambers according to their share in the total

[1] For more details on the founding of the VOC, see e.g. Van Dillen, *Aandeelhoudersregister*, 11-20.

company stock. Put another way, independent of the success of its own operations, each chamber always received a fixed share of the total profit.[2]

This somewhat complicated company structure influenced the organization of the secondary market for VOC shares. Investors subscribed their capital to one of the chambers and thereupon received a share in that particular chamber. Although these shares were intrinsically equal, they were not exchangeable. A share in the Delft chamber, for instance, could not be transferred in the books of the Amsterdam chamber. Hence, after the subscription books closed on 31 August 1602, six different company stocks had been formed.

The subscription was a big success – particularly in Amsterdam, where it took place in the private house of Dirck van Os, one of the company's founders and member of the first board of directors of the Amsterdam chamber.[3] The 1143 investors in the Amsterdam chamber signed up for slightly more than 57 percent of the company's total stock.[4] The first page of the subscription book informed the investors that they could transfer their shares. Investors who had agreed on a share transaction were to go to the East India house to ask the company bookkeeper to officially transfer the share from the seller's to the buyer's account in the company's capital ledgers. The bookkeeper executed the transfer only after two directors agreed on it.[5] The directors' role in this procedure was to check whether the traders had observed all the company's rules regarding share transfers. In practice, this came down to verifying whether the seller actually owned the share he was about to sell. An official transfer in the capital books involved transaction costs amounting to *f* 2.80: the bookkeeper charged *f* 0.60 per transaction and the stamp tax on the deed of transfer was *f* 2.20.[6]

Trading began almost immediately after the closing of the subscription books, even though the last installment of the subscription was due only in 1606. Hence before that time investors traded the right to invest rather than real shares. Gelderblom and Jonker have shown that peaks in the transfer register coincided with the periods in which subscribers had to pay their installments (spring 1603, December 1604, De-

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[2] A concise history of the VOC: Femme S. Gaastra, *De geschiedenis van de VOC* (Haarlem 1982; last revised edition Zutphen 2009). Gaastra's book has been translated into English as: Femme S. Gaastra, *The Dutch East India Company: expansion and decline* (Zutphen 2003). Van Dillen, *Aandeelhoudersregister*, 35.
[3] Van Dillen, *Aandeelhoudersregister*, 35-6.
[4] See footnote 6 on page 2.
[5] Transcript of this page: Van Dillen, *Aandeelhoudersregister*, 105-6.
[6] Pieter van Dam, *Beschryvinge van de Oostindische Compagnie* 1A (1701), F.W. Stapel (ed.) (The Hague 1927) 145.

cember 1605), which indicates that in these years share transfers were partly driven by subscribers being unable to pay an installment rather than by regular trade.[7]

The trade in VOC shares looked a bit different from today's share trading. There was no standard denomination for 'one VOC share', so share traders always had to mention the nominal value of the share they traded.[8] Therefore, the market value of shares was expressed as a percentage of nominal value. Moreover, the VOC never issued stock certificates – bearer shares did not exist. The only evidence of an investor's share ownership was a positive balance on the account under his name in the capital books of the VOC.

The East India house was therefore one of the locations in the city frequented by share traders. The actual trade, however, did not take place in the immediate vicinity of the East India house. Although there was as yet no designated place in the city for the dealings, traders grouped together at a few locations in Amsterdam. In the first decade of the seventeenth century, these centered on the Nieuwe Brug, the bridge crossing the Damrak by the harbor. Unsurprisingly, these were the same locations where commodities traders gathered; the same merchants also dominated the trade in financial securities.

Map 1.1 shows these locations. The Nieuwe Brug (1) had been the principal location for commercial trade in the city since 1561, when the city authorities instructed merchants to use that bridge for their trade.[9] Until that time, exchange dealings had taken place in Warmoesstraat, the main thoroughfare of the medieval part of the city, but this became problematic with the increasing economic activity in the city: the merchants clogged the street and shop entrances. The Nieuwe Brug, right by Amsterdam's harbor, was a good location for commercial dealings: ships from overseas delivered international mail at the 'Paelhuysgen' (2), a small building on the west side of the bridge. The merchants present on the bridge were thus quickly abreast of the latest commercial information. On rainy days, however, merchants still sought shelter under the porches of the Warmoesstraat shops (3), until in 1586, the city government allowed the merchants to use the nearby St. Olofs-chapel (4) and also, occasionally,

[7] Gelderblom and Jonker, 'Completing', 656. See for transaction data figure 3 in loc. cit.
[8] It is true, however, that shares with a nominal value of *f* 3,000 soon became the standard (see, for more details, section 1630s and 1640s – on page 36 ff.). Nevertheless, shares of other denominations could be transferred throughout the existence of the VOC.
[9] J.G. van Dillen, 'Termijnhandel te Amsterdam in de 16de en 17de eeuw', *De Economist* 76 (1927) 503-523, there 503.

the Old Church (5) during bad weather.[10] The office of the notary who executed most commercial and financial deeds, Jan Fransz. Bruyningh, was also close by: he held office in Heintje Hoekssteeg (6), within five minutes walking distance from the bridge.[11]

1607 – The emergence of a derivatives market

Soon after the founding of the VOC, traders also started to trade share derivatives – financial securities derived from shares, such as forwards, options and repos. These types of transactions had VOC shares as underlying assets; they allowed traders to participate in the share trade without necessarily having to pay the full value of the shares they traded.

Forward contracts, obligations to buy a share at a fixed price at a certain date in the future, start appearing frequently in the protocols of Amsterdam notaries in 1607. The Amsterdam merchant community was already familiar with forward contracting before the trade in VOC shares developed. Grain traders, predominantly from Antwerp, had frequently used forward contracts on the Amsterdam grain market from the mid-sixteenth century onwards.[12] The forward market became the most important part of the market for VOC shares in the second half of the seventeenth century; several stock jobbers had a large turnover of forwards without ever transferring a share in the capital books of the VOC.

It was still only a minor division of the market in 1607, but the most remarkable difference with the later seventeenth century was that traders registered their forward transactions with notaries. They were willing to pay the notary's fee, which amounted to at least *f* 1.20 (excluding stamp tax and additional fees for authentic copies), for a formal registration of their contracts.[13] Moreover, the contracts in the proto-

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[10] Clé Lesger, *Handel in Amsterdam ten tijde van de Opstand: kooplieden, commerciële expansie en verandering in de ruimtelijke economie van de Nederlanden ca. 1550-ca. 1630* (Hilversum 2001) 237. Van Dillen, 'Termijnhandel', 503. An example of a share transaction that was negotiated in the Old Church in April 1610 can be found in Haringcarspel *vs.* Meerhout, NA, Court of Holland, inv. nr. 632, nr. 1614-39.

[11] Lesger, *Handel in Amsterdam*, 238.

[12] See for the use of forward transactions in the grain trade in the 1550s and 1560s: Milja van Tielhof, *De Hollandse graanhandel, 1470-1570: koren op de Amsterdamse molen* (The Hague 1995) 215-219. Participation in forward share trade was far more widespread than in commodities trade. In early modern Antwerp and Amsterdam, only traders of a specific commodity traded the derivatives of that particular trade. In the case of the forward share trade, also non-specialized merchants participated: Gelderblom and Jonker, 'Amsterdam as the cradle', 194.

[13] Throughout the seventeenth century, notaries charged a fixed fee for standard deeds. A register of fees charged by public notary Dirck Danckerts: SAA, Notaries, inv. nr. 2856. A bill for notary's services (1686-1691): SAA, PIG, inv. nr. 678, nr. 476.

col of notary Jan Fransz. Bruyningh (25 in the first five months of 1607) show that traders made sure to officially register every step in the process of a forward transaction; they all came back to the notary's office to register contractual changes and, eventually, the contract's settlement.[14] Soon after 1607, however, hardly any forward contracts were registered with notaries; traders had turned to contracting these deals privately, thus lowering transaction costs.

The first forward share traders were probably wary of using private contracts, because they anticipated a resolution of the States General that would declare invalid those derivative share contracts that had not been executed by either a city's alderman or a notary. This resolution would also make it compulsory for share traders to inform the VOC bookkeeper and two directors of all transactions – even those that did not result in an actual share transfer. The States General passed this resolution on 13 June 1607, stating that the rule would shortly be publicly announced[15], but there is no trace that this resolution was ever publicly proclaimed. To be sure, by 1614, the provincial court of Holland had enforced several private forward contracts that had not been registered by any official institution[16], which indicates that this rule was very short-lived – if it had ever been in force at all.

These court rulings paved the way for the development of a market with very low transaction costs. From now on, the only requirement for a forward transaction was a written contract signed by the buyer and the seller. The large amounts of money at stake in the forward share trade created an incentive for forging these contracts, but the following procedure prevented this. When the contractors had come to an agreement on all the details of the contract, they drafted two handwritten contracts, or, in later years, filled out a standard printed form for forward transactions. Two standard forward contracts were printed on a single piece of paper, where three embellished letters (A, B and C) separated the two contracts (see Figure 1.1 for an example). After the traders had filled out the contracts, they separated the form by cutting through the letters, and they each received a signed copy. When they settled their contract, either through a transfer of the share and the money payable or through paying the price difference, the contractors exchanged their contracts and checked their authenticity. If

[14] Bruyningh was specialized in financial contracts. SAA, Notaries, inv. nrs. 105-8.
[15] Resolution of States General, 13 June 1607, N. Japikse and H.H.P. Rijperman (eds.), *Resolutiën der Staten-Generaal van 1576 tot 1609* XIV *1607-1609* (The Hague 1970), 306.
[16] See e.g. Hans van Loon *vs.* Isaac le Maire (4 July 1614), NA, Court of Holland, inv. nr. 633, nr. 1614-102; Dirck Semeij *vs.* Maerten de Meijere, NA, Court of Holland, inv. nr. 636, nr. 1615-138.

the letters did not fit perfectly, the traders knew that one of the parties had cheated. Once the transaction had been settled successfully, the traders tore up their contracts.

The judgments of the Court of Holland, moreover, were proof that the legal system of the Dutch Republic officially recognized the derivatives trade. This may seem all too obvious from a twenty-first-century perspective, but Banner has argued that transactions in which a good or a service was moved only in time (and not in place) were regularly deemed useless and not legally valid in the early modern era.[17] They were considered a form of usury: earning money by just moving it in time, rather than buying or building anything with it – putting it to use, in other words. Usury regulation certainly existed in the Dutch Republic; moneylenders were allowed to charge ordinary people 6% and merchants and shopkeepers – who were more familiar with money – 8%.[18] Some forwards definitely exceeded the usury limit[19], but neither the courts nor the traders themselves ever called upon usury regulation to declare a transaction null and void.

I contend that the courts regarded the forward share trade as a trade in which only well-to-do merchants could participate; there was therefore no risk that ordinary citizens would be directly affected by the transactions and the trade was therefore not usurious in the strictest sense. The high counterparty risk of forward contracts caused this market to be confined to well-to-do merchants. The contractors of a forward made no payments when they agreed on the transaction. Hence, large share price movements during the contract's term provided an incentive for either the buyer or the seller of the contract to renege rather than to comply with the contract – counterparty risk, in other words. If a trader chose to renege, the other party could start litigation in order to try to force his counterparty to comply with the contract, but this was a very costly procedure and traders generally tried to avoid going to court.[20] As a result of these characteristics of the forward market, forward traders entered into con-

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[17] Stuart Banner, *Anglo-American securities regulation. Cultural and political roots, 1690-1860* (Cambridge 1998) 15.

[18] Johannes Cloppenburch, *Christelijcke onderwijsinge van woecker, interessen, coop van renten, ende allerleye winsten met gelt* (Amsterdam 1637) 20-1. Hugo de Groot wrote in 1631 that the usury rate was set at 6% in the Dutch Republic, adding to this that the authorities tolerated interest rates up to 8%: Hugo de Groot, *Inleidinge tot de Hollandsche rechts-geleerdheid* (1631) I, S.J. Fockema Andreae ed. (Arnhem 1939) book III, part 10, §10, 140-2. The usury limit was cut back to 4% in 1655: Hugo de Groot, *Inleidinge tot de Hollandsche rechts-geleerdheid* (1631) II *Aantekeningen*, S.J. Fockema Andreae ed. (Arnhem 1939) 252.

[19] Nicolaas Muys van Holy, *Middelen en motiven om het kopen en verkopen van Oost- en West-Indische actien, die niet getransporteert werden,... te beswaren met een impost, ten behoeve van het gemeene land en de stad Amsterdam* (Amsterdam 1687) 7.

[20] See chapter 3.

tracts only with well-known traders with a high reputation, thus reducing the risk that the counterparty could be tempted to renege. Put another way, the forward market was accessible only for wealthy traders who regularly performed transactions on the exchange and who had a reputation that was known to other forward traders.[21]

It would take until the second half of the century before the forward market also became accessible to participants of lower standing. From around the 1660s onwards, trading clubs, where traders regularly gathered together to trade forwards, emerged (see section 1660s – Trading clubs and rescontre on page 45 ff.). Amongst the participants of these clubs, peer pressure took over the role of a reputation based on wealth or built up over a large number of transactions. Secondly, traders started using repo transactions. A repo replicated a forward by combining a share transfer and a loan (see chapter 4 for more details). The main advantage of a repo over a forward was that the lender received collateral* in the form of a share for the loan he granted to the borrower. This significantly reduced counterparty risk, for the lender could sell off the collateral in case of default and thus reduce his loss. Repos made the derivatives market accessible for a larger pool of traders from at least the late 1610s onwards – the earliest example I have found dates from June 1618[22] – but they were not suitable for the speculative trade of stock jobbers, for a single repo involved several share and money transfers, thus also involving higher transaction costs and more hassle.

Options, finally, which allow traders to insure their portfolios against price changes or to speculate on price changes at low cost[23], were widely used on the market in the second half of the seventeenth century. The earliest reference to an option contract I have found, in the financial records of Louis Trip, dates from January 1660.[24] It is possible, though, that traders adopted the use of this derivate at an earlier stage; if all option contracts were settled successfully, they left no traces in the notarial archives. It is definitely true, however, that neither Hans and Anthoni Thijs nor Elisabeth Coymans, whose financial records predate the Trip files, traded options. Also,

[21] Cf. infra, chapter 1 section 1660s – Trading clubs on page 45 ff. and chapter 3 section Private enforcement mechanism on page 107 ff.
[22] BT, inv. nr. 113, fo. 47. Gelderblom and Jonker argue that repos were already used in the first decade of the seventeenth century, but I am not convinced that what they observed in the portfolio of Hans Thijs actually involved the use of repos: 'Completing'.
[23] See chapter 4, section Portfolio risk on page 134 ff.
[24] Journal entry 16 January 1660, SAA, Merchants' accounts, inv. nr. 50.

the official brokers' regulations mentioned a special tariff for options only in 1689.[25] I contend that this can be explained by the observation that the share trade became of speculative nature only in the second half of the seventeenth century. Forwards and repos were the perfect derivatives for investors who wanted to participate in the East India trade and be entitled to dividends without locking up a large amount of money in a share. These derivatives were thus already widely used in the first decades of the century. Options, on the other hand, are the most suitable derivative for risk seeking and risk mitigating purposes – but the share traders of the early seventeenth century were not yet interested in these issues.

1609-10 – Isaac le Maire

Apart from lowering transaction costs, the use of derivatives provided yet another advantage: they allowed traders to go short on shares. The VOC bookkeeper was of course not allowed to overdraft shareholders' accounts, but derivatives bypassed the company's capital books. On expiration of a forward short sale*, for example, there were two possibilities: either the contractors opted for money settlement, in which case the price difference between the forward price stipulated in the contract and the market price on the expiration date was paid, or they chose to actually transfer the share. In the latter case, of course, the seller had to make sure that he possessed a share to be able to transfer it to the buyer.

Short selling is often associated with speculators who seek to gain from intentionally bringing the price of a security down. This is of course objectionable behavior, but short selling is at the same time an indispensable financial technique, because it enables traders with a zero or small positive position in a certain stock to trade on negative information. On a market where short selling restrictions are in place, on the contrary, traders can choose only between buying a share and doing nothing. This could lead to a situation in which only optimistic traders will act when both positive and negative information become available, which could lead to overvaluation of the share – a price bubble.[26] The possibility to go short thus leads to a better pricing of securities.

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[25] Gelderblom and Jonker, 'Amsterdam as the cradle',205. Smith, *Tijd-affaires*, 82.

[26] Edward M. Miller, 'Risk, uncertainty and divergence of opinion', *Journal of finance* 32 (1977) 1151-1168. Harrison Hong, José Scheinkman and Wei Xiong, 'Asset float and speculative bubbles', *Journal of finance* 61 (2006) 1073-1117.

True, however, as the Amsterdam share market experienced in 1609, short selling is indeed the preferred trading technique of traders who deliberately try to bring the price down. This induced the directors of the Amsterdam chamber to submit a petition to the States of Holland, requesting a ban on short selling of VOC shares.[27] The States ultimately acceded to their request. The discussion that preceded this first example of government intervention in the share market is worth examining closely, because it sheds light on the directors' attitude towards the share trade and on the relation between the shareholders and the directors.

The VOC directors explained in their petition to the States of Holland that a group of share traders had conspired to sell a large number of forward contracts. They had sold many times the value of the shares actually registered on their accounts in the company's capital books. When the agreed date of delivery approached, the sellers began to spread bad rumors about the company, thus bringing the share price down. Subsequently, this bear trading syndicate offered a small amount of stock for sale at a still lower price, thus reinforcing the downward motion of the share prices. Hence the short sellers could buy shares at far lower prices than agreed upon in the forward sales contracts and make a good profit.

The company directors argued that these practices were objectionable; innocent investors had become the victims of the bear traders. Widows and orphans, they wrote, could be harmed by the low share prices – they would be unable to wait until the share price recovered if they were in sudden need of liquidity. By stressing the vulnerable position of widows and orphans, the directors clearly tried to take advantage of the Christian morality of the members of the States of Holland; the Eighth Commandment, which treats theft and usury, states that harming the needy is to be highly condemned.[28]

The directors further argued that the presence of bear traders could discourage people from investing money in the VOC. Finally, they suspected the involvement of competing foreign East India Companies, which tried to weaken the Dutch company and the young Dutch Republic. They thus claimed that one could tell the well

[27] Petition published in J.G. van Dillen, 'Isaac Le Maire en de handel in actiën der Oost-Indische Compagnie', *Economisch Historisch jaarboek* 16 (1930) 1-165, there 31-2 (doc. nr. 2).
[28] Van Deursen has studied the position of the Ten Commandments in Dutch seventeenth-century society: A.Th. van Deursen, *Rust niet voordat gy ze van buiten kunt: de Tien Geboden in de 17e eeuw* (Kampen 2004). See for the Eighth Commandment pp. 180-94.

being of the Dutch Republic by looking at the VOC share price.[29] The directors asked the States to issue a decree that would force all forward traders to settle their contracts and register them in the capital books of the VOC within a month's time.

In their petition, the directors avoided mentioning the name of the leader of the bear-trading consortium. They tried to persuade the States of Holland to take measures, arguing that this was a problem that affected all participants of the market. In fact, however, it was rather a conflict between opposing directors. The syndicate's leader was Isaac le Maire (1558-1624) who had been one of the founding directors of the VOC in 1602.[30] He had subscribed a staggering *ƒ* 85,000 to the company's capital stock, but his important position in the VOC did not last long: he resigned from the board of directors in 1605. The immediate cause was probably a failure on the part of Le Maire to present his expense account of the equipment of a fleet – the directors were entitled to a percentage of the company expenditure for rigging out fleets – and thus Le Maire implicated himself in cheating. Le Maire and the directors were unable to solve this conflict and subsequently, out of resentment, Le Maire kept searching for ways to thwart the company.[31]

One of these ways was the bear-trading consortium[32], which failed to achieve its objectives. The consortium sold most of its forwards, with one- or two-year terms, between June 1609 and January 1610. Their sales seem to initially have brought the share price down[33], but the price started an upward trend after March 1610 – probably initiated by the first dividend distribution of 75% of the nominal value of the capi-

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[29] Neil De Marchi and Paul Harrison, 'Trading "in the wind" and with guile: The troublesome matter of the short selling of shares in seventeenth-century Holland', in: Neil De Marchi and Mary S. Morgan (eds.), *Higgling: transactors and their markets in the history of economics* (Durham 1994) 47-65, there 51-2.

[30] The following is based on Van Dillen, 'Isaac le Maire', 1-28.

[31] He tried to by-pass the company's monopoly by finding a new sea route to the East Indies and was involved in the preparations of the founding of a French East India Company. The plan was called off when Henry IV died in 1610. A few years later, in 1614, Le Maire founded the Australian Company and equipped two ships to discover a passage south of the Strait of Magellan – by then the only known passage in South America, which also formed part of the charter of the VOC. This expedition, led by one of Isaac's sons Jacob, discovered Cape Horn and thus by-passed the company's monopoly. The States-General and Dutch courts of law, however, ruled that the route via Cape Horn was part of the Dutch West India Company's monopoly. Le Maire's efforts had been to no avail. See also Dirk Jan Barreveld, *Tegen de Heeren van de VOC. Isaac le Maire en de ontdekking van de Kaap Hoorn* (The Hague 2002) 16-32.

[32] Le Maire himself participated for 4/15 in the consortium; Hans Bouwer had a 2½/15 share; Cornelis Ackersloot, Cornelis van Foreest, Willem Brasser, Jan Henrixcz. Rotgans, Jacques Damman and Marten de Meyere 1/15 each; Haermen Rosecrans and Steven Gerritsz. 1¼/15 each: Van Dillen, 'Isaac le Maire', 121.

[33] From October 1609 until March 1610 the Amsterdam chamber shares traded at 125-129%: BT, inv. nr. 215, nrs. A4/12, B1/1. Van Dillen, 'Isaac le Maire', 58. SAA, Notaries, 119, fo. 23v.

tal stock in mace.[34] The price increase came too soon for the bear traders. They quickly tried to settle a large part of their contracts before things got even worse for them, but they nevertheless incurred substantial losses; Van Dillen estimated the consortium's total loss at *f* 45,000. Isaac le Maire fled the city of Amsterdam in 1611 and settled in Egmond aan den Hoef. Several other members of the consortium went bankrupt.

Although the share trading community generally condemned Le Maire's behavior[35], they were also ill-disposed towards a ban on short selling. A number of shareholders reacted to the directors' petition by also submitting one. They argued that the company itself was to blame for the recent decrease of the share price. To substantiate their argument, they explained meticulously how the share prices had reacted to the company's successes and failures in the East Indies. Additionally, they stressed that there would be no fear of a further decrease of the share price if the company were managed properly – focusing on profitable trade rather than spending large amounts of money on warfare. According to them, a curtailment of the share trade would be meaningless and would have the opposite result from the directors' intentions. They referred to the price of shares of the other five chambers of the VOC: they were cheaper than the Amsterdam chamber shares, which could only be attributed to the fact that the shares were more actively traded in Amsterdam. Curtailment would thus lead to a price decrease. Finally, the shareholders warned of the unintended consequences of the registration rule: the directors who watched over the registration would be fed with a constant stream of transaction information, providing them an information advantage that they could use in their own dealings.[36]

In addition to these petitions, a memorandum on the state of the share trade and the VOC in general was sent to Johan van Oldebarnevelt, the most influential Dutch politician of the time. This memo, attributed to Isaac le Maire, is considered to be the first manifestation of shareholder activism in history.[37] It did not have the desired effect, however; the States General followed the company directors' petition and

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[34] See section 1609-18 – First dividend distributions on page 28 ff.

[35] De Velaer, for example, called Le Maire's behavior 'objectionable' (*odieus*): De Velaer to l'Empereur, 8 January 1610, BT, inv. nr. 215, nr. B1/1.

[36] Petition shareholders to States of Holland, 1609: Van Dillen, 'Isaac le Maire', 34-8 (doc. nr. 3). See also doc. nrs. 4 and 9. De Marchi and Harrison, 'Trading "in the wind"', 52-3. Paul Frentrop, *A history of corporate governance, 1602-2002* (Brussels 2003) 74.

[37] Memorandum, 24 January 1609: Van Dillen, 'Isaac le Maire', 40-3 (doc. nr. 4). Frentrop, *Corporate governance*, 71-3.

issued a ban on short selling on 27 February 1610.[38] The ban stated that all forward transactions should be registered in the company's books within a month's time after the conclusion of the deal. The bookkeeper transferred shares that were the subject of a forward contract to a special 'time account' for the duration of the contract. This time account was linked to the 'normal' account of the seller – he still held the economic ownership* of the share. If the traders of a forward failed to register the transaction within a month's time, the buyer could let the transaction be declared null and void.

The States General never intended to declare the entire forward market illegal – probably understanding that this was an important and fully legitimate method of trade that had existed in the Netherlands in the commodities trade since the sixteenth century; they only ruled against short sales. The ban had far-reaching consequences for the development of the market. The traders generally ignored the ban; they knowingly continued drawing up short sale contracts that were unenforceable by the law. I will explain in chapter 3 how informal institutions guaranteed the functioning of the forward market.

1609-18 – First dividend distributions

The 1610 ban on short selling brought about a large number of *insinuaties** of forward buyers who feared that their counterparties were short sellers. Interestingly, moreover, these *insinuaties* show that the forward traders were not sure how to deal with dividend distributions. Due to inexperience with the forward share trade, many forward contracts did not stipulate whether the buyer or the seller should collect the dividend. It is important to arrange for possible interim dividends, for the forward price should be adjusted if the buyer collects the dividend and likewise the buyer should be compensated if the seller receives an interim dividend. To complicate matters, the first dividend distributions of the VOC were in kind. This led to conflicts between forward buyers and sellers about how the dividend should be valued.

Shareholders could collect their first dividend in April 1610: 75% of the nominal value of their share in mace.[39] In November of that same year, another 50% in

[38] The full text of the ban can be found in: Cornelis Cau (et al.), *Groot placaet-boeck, vervattende de placaten, ordonnantien ende edicten van de... Staten Generael der Vereenighde Nederlanden, ende van de... Staten van Hollandt en West-Vrieslandt* I (The Hague 1658) 554-555. See also Smith, *Tijd-affaires,* 57-8.

[39] De Velaer to l'Empereur, 19 March 1610, BT, inv. nr. 215, nr. B1/5. G.C. Klerk de Reus mistakenly dated this dividend on August 30, 1610: G.C. Klerk de Reus, *Geschichtlicher Überblick der administrativen,*

pepper was distributed, together with 7.5% in cash – the latter distribution was only for those shareholders who had also collected the pepper. In March 1612, a distribution of 30% in nutmeg followed.[40] Shareholders who had collected all dividends in kind had received a total of 162.5% of the nominal value of their shares, but the market value of the spices proved to be significantly lower. Shareholders complained that the distributed dividends had a market value of only 125%[41]; the sudden abundance of spices on the market had brought the prices down.

The buyers of contracts without dividend stipulations argued that the sellers should collect the dividend and subtract the value determined by the VOC (plus interest over the remaining term) from the forward price. The sellers, for their part, argued that there was no obligation to collect the dividend. In their opinion, the buyers should simply wait until the contract expired and then decide for themselves whether to collect the dividend or not. Their position was stronger: in the absence of a special clause in the contract that specified the procedure in case of a dividend distribution, the seller could not be forced to collect the dividend. To prevent similar conflicts from arising again, a clause that stipulated how the contractors would go about dividend distributions during a contract's term became standard after this episode.

The first dividend distributions yielded yet another problem. Many of the shareholders did not collect the dividend. These shareholders probably did not know what to do with the spices and therefore chose not to collect them, but it is also possible that the company's warehouses contained an as yet insufficient quantity of spices to provide all shareholders with a dividend.[42] In any case, this resulted in a situation where different types of shares were in circulation: shares on which no dividend had been received and shares on which either mace, or pepper or nutmeg or combinations of these distributions had been received. This complicated the trade in shares, all the more so because the shareholders did not value the dividends in the same way as the

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rechtlichen und finanziellen Entwicklung der Niederländischen-Ostindischen Compagnie (The Hague 1894) Appendix VI. F.W. Stapel, the editor of Van Dam's *Beschryvinge*, already noticed this error: Van Dam, *Beschryvinge* 1A, 433.

[40] See Appendix B – Dividend distributions VOC, 1602-1700 for a list of all dividend distributions during the seventeenth century.

[41] Transcription of the *insinuatie* (16 December 1613): Van Dillen, *Aandeelhoudersregister*, 100-2. Names of the complaining shareholders: Pieter Gerritsz. Ruytenburgh, Pelgrom van Dronckelaer, Leonart Rans, Gerson Metsue, Andries Rijckaert, Symen Lodewijcks van Alteren, Pieter de Schilder, Jan van Wely, Balthasar Jacot, Maximiliaen van Geel, Michiel van Merbeeck, Daniel van Geel, Pieter Munnicx and Joan van Geel. See also Den Heijer, *De geoctrooieerde compagnie*, 88.

[42] Jacques de Velaer advised his uncle Anthoine l'Empereur to collect the mace and not to wait too long before collecting it. He expected that the mace would be readily disposed of: De Velaer to l'Empereur, 19 March 1610, BT, inv. nr. 215, nr. B1/5.

company did. Shareholders now traded shares of all conceivable denominations and with widely diverging rights on dividends, leading to complex negotiations over prices.

The VOC managed to bring this situation to an end. The company decided to distribute dividends in cash (57.5% in 1612, 42.5% in 1613 and 62.5% in 1618)[43] to those shareholders who had not collected the dividends in kind. So, after 1618, all shareholders had received 162.5% on their shares. Those shareholders who had collected the distributions in cash had the advantage that their dividend was actually worth 162.5%, but the shareholders who had collected the dividends in kind had the advantage that had they received the distributions earlier and hence earned interest on the proceeds of the dividends. In the end, both groups had received more or less the same. Most importantly, though, is that henceforth I have encountered no references to shares on which less than the total amount of dividends had been collected. So, after 1618, all dividend controversies had come to an end. The company did return to distributing dividends in kind (e.g. in 1623 and again twelve times between 1635 and 1644), but the dividend policy left no more room for discussion.[44]

1611 – Exchange building

As the trade in Amsterdam grew larger, it became clear that the Nieuwe Brug would have to be replaced with a more permanent trading location. The city government therefore ordered the building of an Exchange, after the example of the Antwerp Exchange, in 1607. Figure 1.2 shows the building, designed by Hendrick de Keyser, and officially opened on 1 August 1611.[45] Figure 1.3 gives an impression of the interior of the Exchange[46]. The building consisted of a covered stone passage around a large rectangular courtyard. Each commodity that was traded on the Exchange had its own designated location by one of the pillars that held the roof of the passage. The dealings in financial securities took place by one of the pillars at the back of the Exchange.

Five days before the opening of the Exchange, on July 26, the magistrate issued a bye-law on trade in the city. Trade was to take place only in the Exchange, every day of the week except Sundays, from 11 a.m. to noon and, during summer months (May-August), from 6.30 to 7.30 p.m. During winter, the Exchange was open

[43] See Appendix B – Dividend distributions VOC, 1602-1700.
[44] I will come back to the company's dividend policy in chapter 2, section Share price and dividends on page 65 ff.
[45] Van Dillen, 'Termijnhandel', 503.
[46] In this book, 'Exchange' (written with a capital E) refers to the Amsterdam Exchange, the building designed by Hendrick de Keyser; 'exchange' refers to the general meaning of the word.

during the last thirty minutes before the bells of the city gates rang.[47] The limited opening hours reveal that the city government was keen on concentrating the trade in a single location. This has several advantages: a concentration of traders increases a market's liquidity, because it makes it easier to find counterparties willing to trade. Moreover, interaction between traders also reveals information that can be valuable for other traders. In 1613, the magistrate issued another bye-law to press home their objective. This bye-law declared legally void those commercial transactions that had been concluded during exchange hours, but outside the Exchange. The city government made the regulations even more stringent in 1619; from now on, brokers were not allowed to linger around the Exchange or on Dam Square after exchange hours.[48]

The city magistrate's intentions seem laudable, but they could not prevent trade from also taking place outside the opening hours of the Exchange. The share traders, for example, frequently met on Dam Square.[49] In the second half of the century, moreover, the Kalverstraat inns were crowded with share traders at night. So, the opening of the Exchange did not result in a single location where all the trading in the city converged, but it did move the cluster of locations where share trading took place from the harbor front some six hundred meters south. I have plotted these locations on Map 1.2. The Exchange (1) was located just off Dam Square (2), which was also the site of the city hall that housed the Exchange bank (3), founded in 1609. The city hall on the map is the famous building (now royal palace) that opened its doors in 1655. The front cover of this book also shows Dam Square with the new town hall. Prior to that, the medieval city hall that stood at the same location had housed the Exchange bank. The notaries who specialized in commercial and financial deeds also moved their offices to the Dam Square area (4). They held office either in Beurssteeg, the street alongside the length of the Exchange, now called Rokin, or in Kromelleboogsteeg, the bent alley that connected the Exchange to Dam Square.[50] There were many inns in Kalverstraat, but the one called 'Plaetse Royael' (5) is the only one where

[47] Smith, *Tijd-affaires,* 20.
[48] J.G. van Dillen, *Bronnen tot de geschiedenis van het bedrijfsleven en het gildewezen van Amsterdam* II (The Hague 1933) nrs. 114 and 570. Lesger, *Handel in Amsterdam*, 219.
[49] Jeronimus Velters, who started writing about share transactions to several correspondents in 1671, reported more often that he had been on Dam Square than in the Exchange: SAA, Velters, inv. nrs. 1-4.
[50] The offices of notaries Lock and Van der Groe, whose protocols I have studied extensively, were both in Beurssteeg. Information about the locations of notary's offices in Amsterdam can be found in: A.I. Bosma, *Repertorium van notarissen residerende in Amsterdam, Amstelland, ambachtsheerlijkheden en geannexeerde gemeenten* (Amsterdam 1998).

I am sure that share traders often gathered in the seventeenth century.[51] Finally, the East India house (6) was not far away either. If a share transaction led to an actual transfer, the traders could walk the short distance to the East India house to transfer the share in the VOC capital books and to the Exchange bank to deal with the money transfer.

1622 – The relation between the company and its shareholders

1622 saw the start of a debate about the corporate governance of the VOC, highlighting the relations between the company and its shareholders. A number of pamphlets expressed the shareholders' discontent with the company management. Interestingly, the debate followed a period of relatively uncomplicated relations between the company's stakeholders and its directors. The only utterance of friction took place in 1613, when a group of shareholders served an *insinuatie* on the directors of the Amsterdam chamber, claiming that the directors managed the company badly. According to them, the company was charged with too many warfare responsibilities whereas it would be more profitable if the company solely focused on trade.[52] This *insinuatie* did not impress the directors, however, probably because its authors did not gain large support for their cause. Additionally, it was simply a bad time to start shareholder activism: this was a period in which most of the shareholders were satisfied with the way things went. The company had started distributing dividends, shareholders calculated that the goods brought ashore so far already covered 80% of the initial investment and only positive news came from the East Indies.[53] The bearish atmosphere had faded away and the share price rose to 230% in early 1611 and around 270% in 1612-3.[54]

The relation between the company and its shareholders became subject of discussion in 1622 because this year marked the end of the VOC charter. The shareholders had awaited this moment for a long time: the company's balance would be prepared and the shareholders would finally get information about the financial state of the company – the VOC had not published any financial reports during the first charter – allowing the shareholders to monitor the performance of the company management. But the directors had other plans: they asked the States General to renew the

[51] See section 1660s – Trading clubs on page 45 ff.
[52] Transcription of the *insinuatie* (16 December 1613): Van Dillen, *Aandeelhoudersregister*, 100-2.
[53] De Velaer to l'Empereur, 30 September 1610, BT, inv. nr. 215, nr. B1/11.
[54] De Velaer to l'Empereur, 9 May 1611, BT, inv. nr. 215, nr. B2/5. BT, inv. nr. 112, nr. C1.

charter for another fifty years.[55] If the States General would follow up on this request, the current shareholders would not get any official information about the company they co-owned during their lifetimes.

It is no wonder, then, that the shareholders protested strongly against this request; 1622 saw the publication of a number of pamphlets directed against a continuation of the charter. These protests resulted in the States General granting only another 21-year charter. The new charter moreover allowed the shareholders a form of supervision of the company management: the VOC would give inspection of its financial records to a special commission of shareholders. Finally, it changed the rights and privileges of the company directors, to avoid the semblance of personal enrichment on their part.[56]

The pamphlets clearly show that the shareholders had their doubts about the good intentions of the company directors. They accused them of enriching themselves to the disadvantage of the shareholders by rigging out too many ships – thereby pocketing a percentage. They argued that the large number of ships that were still out on the seas at the end of the first charter proved their accusation; a company that was about to be liquidated should not equip new fleets. The directors merely tried to maximize their personal income rather than the company's.[57] Moreover, shareholders suspected the company directors of trying to profit from manipulating the share price. Directors were obliged to hold a considerable share capital (*ƒ*6,000 nominal for the Amsterdam directors) as a token of their commitment to the VOC. But according to the writers of the pamphlets, some of them traded actively on the secondary market, thus revealing that they tried to make short-term profits on their transactions. A sincere director, however, should try to maximize the company value over the long-term, securing the largest profits on his share capital by simply holding on to his possessions. Thus, or so the pamphlets suggested, the directors did not show the right commitment.[58]

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[55] Simon van Middelgeest, *Nootwendich discours oft vertooch aan de hooch-mogende heeren staten generaal van de participanten der Oost-Indische Compagnie tegens bewinthebbers* (s.l. 1622).
[56] Den Heijer, *De geoctrooieerde compagnie*, 65-7, 82-4. Frentrop, *Corporate governance*, 84-95.
[57] Van Middelgeest, *Nootwendich discours*. *Korte aenwysinghe der Bewinthebbers Regieringe* (s.l. 1622), fo. 3v. *Korte Aenwysinghe van de kleyne profijten die de Participanten vande tegenwoordige gheoctroyeerde Oost-Indische Compaignie dese 19. jaren hebben ghenoten, ende waer uyt 'tselve is gesproten op dat int nieuwe aenstaende Octroy dor de E.H.M. Heeren Staten Generael daer in mach werden versien* (s.l. 1622).
[58] Simon van Middelgeest, *Tweede noot-wendiger discovrs ofte vertooch aan alle lant-lievende, van de participanten der Oost-Indische Compagnie, tegens bewinthebbers: In 't jaar een-en twintich, der onghedane rekeninge* (s.l. 1622). *Korte aenwysinghe*, 4. *Vertooch aen de Ed. Ho. Mo. Heeren Staten Generael, aengaende de tegenwoordige Regeringe van de*

Although the States General declared the pamphlet *Nootwendich discours* libelous[59], they did give in to many of the shareholders' requests – on paper, at least. The pamphlets certainly contributed to persuading the States General to change the corporate governance of the VOC, but the most forceful demonstration of shareholder power was the refusal of many investors to subscribe to the West India Company's stock – the WIC was about to be granted a founding charter similar to the VOC charter of 1602. Thus they showed that the current charter was not the right framework for workable relations between a joint-stock company and its shareholders.[60]

The following changes with respect to shareholder relations were enacted in the new charter. First of all, it provided for the establishment of boards of so-called chief participants (*hooftparticipanten*). Chief participants were given several rights. They got permission to inspect the company's annual report and in later years, they were also allowed to be present when the company management read the letters from the East India branch and when they inspected the cargo of the return fleet. Finally, the chief participants could nominate a number of candidates for a vacant director's seat. To become a chief participant, the same requirements applied as to become eligible for a directorship: for shareholders of the Amsterdam chamber this implied a nominal position of at least *f* 6,000. The charter made two further changes to the corporate governance. It stipulated that henceforth directors would be appointed for only three years instead of for life; afterwards, they could be re-elected, but only after a three-year period outside the board of directors. Relatives could not have a seat in the same board. Secondly, the charter abolished the commission directors received on equipment costs, but they retained the right to receive a 1%-commission on the value of the return cargo – besides their fixed salary.[61]

Despite these promises, the shareholder activism of 1622 had little effect. Soon after the renewal of the charter, the chief participants evolved into deputy company directors, rather than the protectors of shareholders' interests. The omens were pointing this way already during the first chief participants' election. A large number of the

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Bewinthebbers van de Oost-Indische Compangie, ende hoeveel dat den Staedt van 't Landt daer aenghelegen is, dat de selve voortaen door goede Ordere beter mach geregeert worden (s.l. 1622).

[59] *Placcaet ieghens seecker fameus libel, geintituleert, Nootwendigh discours, ofte Vertoogh aende [...] Staten Generael, vande participanten der Oost-Indische Compagnie, tegen de bewinthebberen* (The Hague 1622).

[60] Frentrop, *Corporate governance*, 100. Den Heijer, *De geoctrooieerde compagnie*, 63.

[61] Frentrop, *Corporate governance*, 95. Interestingly, Irwin has suggested that the VOC achieved supremacy in the East India Trade through its managerial incentive scheme: Douglas A. Irwin, 'Mercantilism as strategic trade policy: The Anglo-Dutch rivalry for the East India trade', *The journal of political economy* 99 (1991) 1296-1314.

candidates and of the shareholders who had exerted themselves to go to the election were relatives of (former) company directors. Consequently, the boards of chief participants did not become the independent supervisory bodies the activist shareholders had probably hoped for.[62] In fact, the chief participants originated from the same clique that furnished the company directors.

The obedient behavior of the chief participants is a clear indication of their dependency on the company management. First of all, they were only very rarely given the opportunity to inspect the company's financial records, but they did not protest against this breach of the charter of 1623. They were allowed to take a look at the books in 1622, but the next inspection did not take place until 1647 – when the States General renewed the charter once again. Henceforth, the VOC presented its annual report to a commission of chief participants and a commission of members of the States General at four-year intervals. But the financial reporting did not take place 'with open doors and windows', as stated in the first renewal of the charter. It was, to the contrary, a closed meeting.[63] Moreover, the commissions of chief participants and members of the States General did not have to report on their findings to the regular shareholders. The latter were, according to the charter, not in a position to judge the management's decisions on their merits.[64]

Secondly, they had access to the correspondence between the branches of the VOC in the United Provinces and abroad and were allowed on the ships of the return fleet to examine the size and quality of the cargo, but they never opposed any of the decisions taken by the management. What is more, the information they had access to was confidential; they were not allowed to share it with the shareholders outside their committee of chief participants. Lastly, they did not make any effort to enforce the maximum term of the directors' appointments – it was in their personal interest to refrain from enforcing this rule too strictly, because their own appointment was subject to the same rule. Put another way, they could stay on for life themselves as long as they did not complain about the appointment term of the directors.[65]

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[62] *Procedvren ghehouden over de verkiesinge der hooft-participanten, tot het opnemen van de een-en-twvintichjarige reeckeninge der Oost-Indische Compagnye* (s.l. 1623).
[63] Van Dam, *Beschryvinge* 1A, 367.
[64] Van Dam, *Beschryvinge* 1A, 291-2. In Van Dam's words: '[…] dat die sake niet soude mogen werden gedivulgeert, nog overgegeven in handen van de particuliere participanten, die volgens 't octroy *geen qualiteyt hadden om kennisse daarvan te nemen*' [emphasis added].
[65] Van Dam, *Beschryvinge* 1A, 302-8. Please note that the chief participants received a salary for their duty to look after the shareholders' interests (in 1622 set at *f* 200 per year): Den Heijer, *De geoctrooieerde compagnie*, 84.

The new charter did not provide any additional monitoring rights to the company's regular shareholders, nor were their interests properly looked after by the chief participants. Conversely, in the same period, the English East India Company granted many more rights to its shareholders. De Jongh has argued that this difference emanated from the different origins of the two companies. The EIC was originally a terminable joint-stock company, meaning that the company management had to make sure at regular intervals that there was sufficient support to continue the company. The best way to do this was to maintain good relations with its shareholders.[66] The VOC was not dependent on investors for new stock issues or continuation of the company. Furthermore, the dividend policy of the company kept shareholders satisfied; the VOC began to distribute dividends on a regular basis shortly after the start of the second charter – biennial dividends in the 1620s and first half of the 1630s, and from 1635 onwards every year. These dividends provided information about the financial state of the company to the shareholders.[67] Therefore, another corporate governance debate like the one of 1622 did not occur.

1630s and 1640s – Intermediation and a changing composition of the trading community

The best proof that the shareholders accepted their limited rights is the fact that trading activity on the secondary market increased rapidly during the 1630s and 1640s. This was a major development, because it suggests that investors increasingly used the market for purely financial purposes – they aimed increasingly at earning short-term profits rather than at holding a long-term position in the VOC to support the company and its trade with the East Indies. The increasing market activity coincided with the growing importance of intermediary services by brokers and market makers on the market. The brokers' guild had existed in Amsterdam long before the secondary market for VOC shares came into being and in the early seventeenth century a number of brokers specialized in share transactions. The service they provided was to bring traders together; brokers were not allowed to take a position in the stock themselves. The

[66] The VOC, however, was a merger of the *Voorcompagnieën*. Investors had not invested directly in these companies; the subscription took place via one of the directors. Hence, there was no direct relationship between the company and its shareholders; each director knew some of the shareholders personally and maintained the relations individually. This structure obstructed the evolution of shareholder rights. The VOC did not use the same method for subscribing money to the company stock, but it did copy the corporate governance structure of the *Voorcompagnieën*. In sum, the diverging shareholders' relations in early modern Western Europe were a matter of path dependency: De Jongh, 'Zeggenschapsrechten van aandeelhouders', *Working paper* (2009), 19-20, 72, 99-101.

[67] I will go deeper into this subject in chapter 5.

broker's commission on share transactions was 10 *stuivers* per *f* 100 nominal value (as of 1 January 1613) and this rate was reduced to 4 *stuivers* per *f* 100 nominal value in February 1647. Hence, from the late 1640s onwards, the total brokerage on the most frequently traded shares of *f* 3,000 amounted to *f* 6 (both the buyer and the seller paid *f* 3) – on average less than 0.05% of the money involved in a spot transaction.[68]

However, the part played by brokers was fairly small in the earliest decades of the development of the secondary market. Of all the transactions that took place in the period 1609-1612[69], for example, I have found only four that had been concluded through a sworn broker.[70] The rest of the transactions were no doubt concluded without intermediation of a broker; my data stem from legal documents and plaintiffs would certainly have mentioned the intermediation of a broker as this would only have made their argument stronger. Traders apparently held the opinion that they were perfectly able to prepare their transactions themselves.

Brokers did become more important later in the seventeenth century, but another group of intermediaries, market makers, were the first to start playing a significant role on the market. Market makers constantly hold a positive position in a certain share to make sure that they can always sell a share if a prospective buyer approaches them. At the same time, they are always willing to buy shares. Hence they simplify the process of finding a counterparty for both buyers and sellers. The advantage for share traders is that they can always turn to a market maker if they want to make a transaction, but they will, of course, be charged for the services they get from the market maker. In return for the liquidity they provide, market makers pay less than the market price for a purchase and ask more than the market price for a sale. The difference between these prices is called the bid/ask spread. This spread represents the fee for the market maker. Market makers thus try to earn money by trading as many shares as possible rather than by holding shares for capital gain.[71]

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[68] Hermannus Noordkerk (ed.), *Handvesten; ofte Privilegien ende octroyen : mitsgaders willekeuren, costuimen, ordonnantien en handelingen der stad Amstelredam: ... tot den eersten Febr. 1747 vervolgt. met verscheide stukken verm., mitsgaders in eene andere schikking gebragt / en met de nodige registers voorzien* II (Amsterdam 1748) 1063. Smith, *Tijd-affaires*, 65. In 1689, the broker's fee was changed again, but this measure was reversed shortly afterwards: Smith, *Tijd-affaires*, 81-2.

[69] Many sources are available for these years, since the activities of Le Maire's bear-trading syndicate and the first dividend distributions had led to quarrels between share traders.

[70] Names of the brokers: Isaac Florianus, Melchior van Dortmont, Balthasar Geerardtsz, References to the transactions that were concluded via a broker: BT, inv. nr. 215, nr. A3/6. BT, inv. nr. 112, nr. C2. Van Dillen, 'Isaac le Maire', 46 (doc. nr. 6). SAA, Notaries, inv. nr. 117, fo. 81.

[71] Ananth Madhavan, 'Market microstructure. A survey', *Journal of financial markets* 3 (2000) 205-258, there 212.

On the Amsterdam market for shares, market maker was not an official profession; the traders who started to provide these services to the market in the 1630s simply saw a possibility to earn a profit by providing liquidity to the market. Between 1626 and 1642, the Raphoen brothers, Christoffel and Jan, were the first to become market makers. They transferred an impressive amount of shares (both sales and purchases) on their joint account with the VOC. Table 1.1 summarizes their share transfers in this period. They performed a large number of transactions, especially in 1633, 1638 and 1641, which, incidentally, does not mean that they were market makers. There are convincing indications, however, that they were indeed market makers. Firstly, their invested nominal capital fluctuated around a relatively low average. In June 1630 they owned a nominal share capital of *f* 13,200. Their position grew to *f* 21,450 in October 1633 and then declined to *f* 3,000-4,000 between 1636 and 1641. Their share capital was thus very small relative to the amount of shares they transferred, which indicates that they did not either enlarge their capital because they expected the VOC to prosper in the future or reduce it because of an expected fall in the share price; they transferred shares because they made a profit just by trading.

	Nominal turnover (f)		*Number of transactions*	
	Sale	*Purchase*	*Sale*	*Purchase*
1626	0	4200	0	2
1627	9000	2100	3	3
1628	0	15900	0	6
1629	24000	21800	7	9
1630	39500	34500	14	11
1631	24000	27000	8	9
1632	24000	24000	7	8
1633	58650	67650	19	21
1634	47700	32700	15	12
1635	37800	31800	13	10
1636	22500	32413	8	10
1637	44800	36814	13	16
1638	60508	58831	19	25
1639	36628	41139	13	14
1640	29807	41785	13	17
1641	79000	83991	24	31
1642	18000	24000	4	8

Table 1.1 Spot transactions of Christoffel and Jan Raphoen, 1626-42
Source: NA, VOC, inv. nr. 7068, fo. 210, 249, 274, 281, 299, 310, 326, 344, 369, 387, 431, 474, 501.

Secondly, and most convincingly, they consistently bought small shares, i.e. shares smaller than *f* 3,000. At the same time, however, they mostly sold *f* 3,000

shares. By the 1630s, it had already become customary on the Amsterdam market to trade *f*3,000 shares.[72] Forward transactions nearly always involved shares of *f*3,000 or a multiple of this amount. But many people owned a share capital that did not amount to *f*3,000 or an exact multiple. These 'non-standard' shares were less liquid than the 'standard' *f*3,000 shares. They could, for example, generally not be used in forward contracts and clearing of multiple transactions in a single payment and share transfer also required shares of the same denomination. Over the years 1636-41 the Raphoen brothers bought 41 shares of denominations smaller than *f*3,000, which means that they were involved in 11 percent of the total number of transferred shares of less than *f*3,000.[73] In these same years, the average nominal value of a share bought by Christoffel and Jan Raphoen was *f*2,613, while the average sale amounted to *f*3,098. They sold significantly more *f*3,000 shares than they bought. They thus provided liquidity to the market for awkward denominations and contributed to the standardization of the market for VOC shares.

Finally, the Raphoen brothers made the market more accessible for shareholders. Investors could always turn to them to buy or sell a share and it cannot have been difficult to find them: Christoffel lived on Nes, the main thoroughfare behind the Exchange.[74] They probably visited the Exchange on a daily basis.[75] By constantly being willing to trade, they helped to overcome the asynchronous timing of investor orders, a major problem of many markets.[76] The Raphoen brothers were the missing link between a trader willing to sell and a trader willing to buy, who happened to be not at the same place at the same time. Moreover, it seems that they specifically made the market more accessible for infrequent traders and traders who were inexperienced with exchange dealings in general. The VOC capital books do not allow for a social study of the people who traded with Christoffel and Jan Raphoen (only the names of traders are specified), but it is beyond doubt that the people who bought from the Ra-

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[72] In 1610, slightly less than 30% of the share transfers registered in the capital books of the Amsterdam chamber involved shares with a nominal value of exactly *f*3,000. Share transfers of exact multiples counted for an extra 2.5%: NA, VOC, inv. nr. 7066. The share of *f*3,000 shares had grown to 82% in 1641 and 92.5% if multiples of *f*3,000 are also taken into account: NA, VOC, inv. nr. 7068.

[73] Total number of shares transferred in the period 1636-1641: 3614, total number of share transfers <*f*3,000: 363.

[74] J.G. Frederiks and P.J. Frederiks (eds.), *Kohier van den tweehonderdsten penning voor Amsterdam en onderhoorige plaatsen over 1631* (Amsterdam 1890) fo. 236. Christoffel Raphoen was a relatively wealthy man. His property was taxed at *f*40,000 in 1631.

[75] Notarial deeds show that they were also commodity merchants, shipping goods to several places in Europe: SAA, notarial card index.

[76] Maureen O'Hara, 'Optimal microstructures', *European financial management* 13 (2007) 825-832, there 831.

phoen brothers were generally well-to-do merchants whose names appear frequently in the capital books and in any study on the economic history of seventeenth-century Amsterdam, whereas the traders who sold to them were relatively unknown and infrequent traders. This indicates that Christoffel and Jan Raphoen stood in-between the community of frequent traders and investors with limited access possibilities to the market.[77]

The Raphoen brothers were certainly not the only market makers active on the exchange throughout the seventeenth century, but the characteristics described above distinguish Christoffel and Jan Raphoen as market makers. Market makers who only provided liquidity for standard denominations can less clearly be identified, for a trader with a large turnover does not necessarily have to be a market maker. Anthony Lopes Suasso, for example, bought 41 and sold 47 shares in 1664[78], but this did not automatically make him a market maker. He rather acted as a banker, granting loans on the collateral of a share. These shares were temporarily transferred to his account, thus explaining the high turnover on his account. Incidentally, Lopes Suasso's role on the market was not unimportant either, but he did not provide services similar to those of Christoffel and Jan Raphoen.

The appearance of market makers coincided with a rapid increase in the share price and in trading activity on the securities market in Amsterdam. These three events were interrelated. The share price increase, mainly caused by a change in dividend policy of the VOC[79], gave long-time owners of shares – e.g. investors who had subscribed money in 1602 or who had inherited a share – a good opportunity to sell their shares with a considerable profit. The market makers made it easier for them to access the market. Hence, more shares became available for active traders, which enhanced trading possibilities. The result of this can be seen in Figure 2.2 (on page 77), which depicts the number and nominal value of share transfers in the records of the Amsterdam chamber for 1639. In this year, 713 share transfers were registered in the

[77] This bears resemblance to the findings of Ann Carlos, Larry Neal and Kirsten Wandschneider. Using a dataset of 6,844 Bank of England shares transactions performed in 1720, they conclude that the traders whom they designate as market makers were more often involved in large transactions and transactions in which women and/or investors from outside London were a contracting party. In other words: the market makers made the market more accessible for those traders with less information/access possibilities to the market (women and people from outside London) and for those who needed to sell off a large block of shares and were therefore in need of liquidity providers: Ann Carlos, Larry Neal and Kirsten Wandschneider, 'Networks and market makers in Bank of England shares: London 1720', *Working paper* (2007) 4, 12.

[78] NA, VOC, inv. nr. 7070.

[79] See chapter 2, section Share price on page 65 ff.

East India house – a marked increase in trading activity compared to the 365 share transfers of 1609 (see Figure 2.1 on page 76).

With so much more trade going on, it does not come as a surprise that the market participants increasingly used the services of brokers. The market became ever more complex, which made it harder for an individual trader to obtain all the information necessary to perform a transaction. It now paid to hire a broker who was specialized in collecting information about possible counterparties. The real upswing in the demand for brokerage services took place in the 1640s. This observation is corroborated by the member lists of the brokers' guild: almost all brokers who dealt frequently in share transactions became members of the guild during or after the 1640s.[80] Moreover, the Amsterdam city authorities justified their reduction of the brokerage fees in 1647 by pointing to the recent increase in market activity and demand for brokers' services.[81] But since the market had already started to expand significantly during the 1630s, the growing demand for brokers' services a decade later cannot be fully explained by market growth alone. I contend that a structural change in the composition of the trading community, with the appearance of Portuguese Jews as its most conspicuous feature, explains the growing demand for brokerage in the 1640s.

The sources do not allow for a comprehensive social analysis of the trading community in general and, more specifically, an analysis of who traded with whom, for the capital books of the VOC and the records from several judicial institutions give only the names of the traders. And even these names must be treated with caution, because it is always possible that people performed transactions on the accounts of others – the names that turn up in the registers do not have to be the names of the actual parties to a specific transaction. Still, a simple analysis of the trading commu-

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[80] Membership list of the brokers' guild: SAA, Brokers' guild, inv. nrs. 1071, 1115. Inv. nr. 1115 lists the Jewish members. These registers do not specify the goods or services in which a particular broker specialized. I have therefore looked up names of brokers that are mentioned in other sources.
In addition to the official brokers, there were also interlopers – *bijlopers*, persons who performed brokerage activities without being members of the brokers' guild – active on the market. Their names were never mentioned in official documents, since transfers that had been contracted through an interloper were legally void and the traders involved liable to a fine. The files of the arbitration board of the brokers' guild indicate that interlopers' involvement in the share trade was limited: only a very small part of the disputes over interlopers concerned the share trade. Swetschinski, who focused on Jewish interlopers, counted only two cases concerning the trade in VOC shares over the period 1641-82. By way of comparison: in the same period, there were 57 conflicts over interlopers concerning bills of exchange: SAA, Brokers' guild, inv. nr. 1289. Daniel Swetschinski, *Reluctant cosmopolitans: the Portuguese Jews of seventeenth-century Amsterdam* (London 2000) 145.

[81] Noordkerk, *Handvesten* II, 1063. Smith, *Tijd-affaires*, 65.The justification gives the impression that the city authorities reasoned that brokers would still be able to make a living if they only earned *f* 6 per transaction.

nity is possible, using the names of all the people that transferred a share at the East India house in a certain year as a proxy for that year's trading community. In the first decade of the seventeenth century, shares were mostly traded by the wealthiest Amsterdam merchants, many of whom were of South Netherlandish descent and/or member of the board of directors. This changed from the 1630s onwards. From now on, also lesser-known merchants participated in the trade and the market makers such as Christoffel and Jan Raphoen allowed people who were inexperienced with exchange dealings to occasionally trade a share.

The most far-reaching change in composition of the trading community started in the 1640s, however. In that decade, Portuguese Jews began to become involved in the trade in VOC shares and they soon dominated the market. The start of Portuguese Jewish participation in the market coincided with the onset of their great commercial success in Amsterdam. A large number of Portuguese Jewish merchants had been active in commerce in the Dutch Republic during the Twelve Years' Truce (1609-21) in the war between Spain and the Dutch Republic. During the truce, trade restrictions with the Iberian Peninsula were lifted, allowing the Portuguese Jewish merchants to benefit from their strong trading networks in that part of Europe. When the truce came to an end, and trade restrictions were again implemented, a large part of Amsterdam's Jewish population left for Hamburg and later also for Dutch Brazil – the Dutch colony where governor John Maurice of Nassau-Siegen granted a high level of religious freedom to Jews. During the 1640s several circumstances again provided an incentive for Portuguese Jews to settle in Amsterdam. John Maurice was forced to come back to the Netherlands and a little later the Dutch lost control over Dutch Brazil. Moreover, Portugal gained independence from Spain in 1640, which made trade with Portugal from the Dutch Republic possible. Finally, peace with Spain was signed in 1648, after which the Portuguese Jews could again exploit their trading networks on the entire Iberian Peninsula.[82] Their strong participation in commerce is visible in the number of Portuguese Jewish accountholders in the Amsterdam Exchange Bank, which more than doubled during the 1640s.[83]

It did not take long before they invested their newly gained wealth in shares of the VOC and from the 1660s onwards, they dominated the trade. The Portuguese-

[82] Swetschinski, *Reluctant cosmopolitans*, 109-13.
[83] J.G. van Dillen, 'De economische positie en betekenis der Joden in de Republiek en in de Nederlandse koloniale wereld', in: H. Brugmans and A. Frank (eds.), *Geschiedenis der Joden in Nederland* (Amsterdam 1940) 561-616, there 564.

Jewish synagogue responded with amazing speed to these developments: in 1641, it imposed a community *imposta* on the trade in shares and in 1662 the congregation's board of directors decided to halve the tax, because the number of transactions performed by Jews had grown significantly.[84] Portuguese-Jewish share traders often traded within their community. This is not surprising, for the simple fact that there were so many Portuguese-Jewish share traders. Moreover, they met each other regularly: they tended to live in the same neighborhood where they sometimes traded when they encountered each other in the street[85] and sources give evidence that they also traded shares when they attended the weekly service in the synagogue.[86] Finally, the trading clubs (to which I will turn in the next section) were almost fully Jewish.

All this does not mean that transactions between Jewish and Christian share traders never occurred, however. The capital books give proof of frequent share transfers between members of the two religious groups, but to conclude from this that both groups of share traders were fully integrated would stretch the truth. Notarial deeds from 1672 suggest that Jewish and Christian traders preferred to conclude forward transactions, the transactions involving the highest risk, within their own community. Intercommunal transactions occurred more often for less risky deals: repo and spot transactions occurred frequently between the two religious groups.[87]

It is plausible that this diversification of the trading community resulted in an increase in the demand for brokerage services. The traders who dominated the share trade in the earliest decades of the seventeenth century all belonged to the Christian merchant community; they met each other regularly in the Exchange and were often even connected through marriage. The interconnectedness of the traders and the small number of active traders made it easy to get information on possible counterparties for a transaction. Moreover, the traders could easily obtain information about a

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[84] Swetschinski, *Reluctant cosmopolitans*, 145.

[85] Several notarial deeds give evidence that Portuguese-Jewish share traders regularly traded on the streets of the Jewish quarter. An attestation dated 13 September 1688, for example, gives information about a transaction that had been concluded on Jodenbreestraat, in the heart of the Jewish quarter. Four Portuguese Jews (Jacob da Costa Athias, Isaack de Jacob Belmonte, Isaack Gabaij Henriques and Guillelmo Vega) and one Portuguese-Jewish broker (Samuel Perero) were involved in this transaction: SAA, Notaries, inv. nr. 3704, fo. 448.
An anonymous English description of the stock exchange postulates that shares were traded daily 'at eight in the morning in the Jewes-street', but I have no evidence that confirms this. *A Description of Holland, with some necessary directions for such as intend to travel through the Province of Holland* (London 1691) 40. Cited in: Israel, 'The Amsterdam financial crash of 1688', 454.

[86] In 1677, when it had been forbidden for some time already for brokers to talk business before or after prayers in the synagogue, the Mahamad also prohibited shares being traded on the patio of the synagogue or in its immediate vicinity: Swetschinski, *Reluctant cosmopolitans*, 208.

[87] SAA, Notaries, inv. nrs. 2238-40.

possible counterparty's reputation – particularly important for transactions with high counterparty risk such as forward transactions. Moreover, reputation mattered greatly to members of the merchant community, because loss of reputation (e.g. after reneging on a forward) would severely hamper a merchant's career.[88] The entry of new groups of participants on the secondary market for VOC shares made the market more complex and thus significantly raised the cost of information, which created possibilities for brokers to expand their activity on the market: the brokers specialized in gathering information, both about supply and demand of shares on the market, but also about the reputation of traders.[89]

Various sources give evidence that the part played by brokers had become very important by the last quarter of the century. Jeronimus Velters, for example, kept a register of share transactions (December 1691 – August 1692) in which he noted which broker had negotiated the transaction. The word 'sonder', meaning that he had concluded the transaction without intermediation of a broker, appears only very rarely in his register.[90] The brokers' bills in the business papers of Manuel Levy Duarte, dating mainly from the 1680s, show that the same held for the traders who belonged to the Sephardic community.[91] Furthermore, when a conflict arose over a share transfer, plaintiffs almost without exception mentioned the name of the broker who had negotiated the deal. The large number of brokers attesting before a notary in cases relating to the share trade also indicates their important position.[92]

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[88] This is based on the concept 'learning'. It has been shown traders could enter into high-risk transactions after successfully completing a number of lower-risk transactions. The trading community 'learned' about a trader's creditworthiness in the course of completing these lower-risk transactions. Conversely, contract non-compliance in a certain transaction would also have influenced a trader's ability to enter into transactions on other markets. Peter Temin, 'Financial intermediation in the early Roman Empire', *The journal of economic history* 64 (2004) 705-733, there 710. Ann M. Carlos, Jennifer Key and Jill L. Dupree, 'Learning and the creation of stock-market institutions: evidence from the Royal African and Hudson's Bay Companies, 1670-1700', *The journal of economic history* 58 (1998) 318-344, passim.

[89] Broker Cornelis de Bruijn, who intermediated in a transaction between Philips de Bacher and Willem Muijlman in September 1644, for example, first approached De Bacher on the Exchange, asking him whether he was interested in buying a *f* 3,000 share. De Bacher answered that his willingness to buy a share depended on the price and the counterparty. De Bruijn then made the first bid and assured De Bacher that his client was 'a very good man': Philips de Bacher *vs.* Willem Muijlman (1650), NA, Case files, IIB274.

[90] These registers can be found in Velters' letter book: SAA, Velters, inv. nr. 4.

[91] The bills are scattered throughout his papers. Most of them can be found in: SAA, PIG, inv. nr. 685a-b.

[92] Attestations were often registered before a public notary in preparation of a civil lawsuit: Aries van Meeteren, *Op hoop van akkoord: instrumenteel forumgebruik bij geschilbeslechting in Leiden in de zeventiende eeuw* (Hilversum 2006) 172.

The intermediation by brokers in the late seventeenth century went beyond simply bringing together a trader willing to buy a share and a trader willing to sell one. Traders often only learnt who their counterparty was after the deal was made.[93] Put another way, brokers took care of the entire negotiations and the traders themselves only needed to sign the contract.[94] Brokers thus evolved from intermediaries into business partners. The 1672 notarial data indicate that traders fully trusted the information provided by brokers as long as the risk involved in the transaction was not too high. In the case of forward contracts, where the incentive to renege was considerably higher, they wanted to know their counterparty personally and therefore relied more strongly on community ties.

1660s – Trading clubs and rescontre

The emergence of trading clubs in the second half of the seventeenth century created sub-markets with very strong internal ties. The basics of these clubs can be explained in a single sentence: a delimited group of traders met on fixed dates in an inn or coffeehouse to trade shares. The importance of the clubs, however, was far-reaching and needs further elaboration. There were several closely connected advantages of trading on one of the sub-markets. Firstly, all members traded frequently. Hence they formed a community of active traders, who were all very experienced with the rules and customs of the share trade. Secondly, because they traded frequently, their reputation mattered greatly to them. It is easy to see why: for traders who only traded once, it did not matter if they got a bad name, because they never intended to return to the market in the first place. Frequent traders, on the contrary, were dependent on their good reputation to be able to keep participating in the trade. As a result, in a community that consisted solely of frequent traders, the chances that a trader would renege were smaller than on the market as a whole. Moreover, the confined community size enabled its members to monitor each other; peer pressure made sure that everybody obeyed the rules. This was very different from the secondary market for VOC shares as a whole: contrary to today's stock markets, there were no membership requirements

[93] E.g. attestation 29 December 1672, SAA, Notaries, inv. nr. 2240, fo. 892. *Insinuatie* 15 June 1688, SAA, Notaries, inv. nr. 4133.

[94] The brokers' ordinance of 1693 indicates that by that time it had become customary for brokers to conclude a deal and only then hand it over to their clients. The ordinance decreed that brokers should always report to their clients within 24 hours' time and that they were not allowed to sign in the name of their clients: Smith, *Tijd-affaires*, 83.

for entering the Exchange building, let alone formal requirements to participate in the market on the streets.[95]

The literature suggests that there existed separate Jewish trading clubs. The sharp price fall of August 1688, for example, would have been initiated in Jewish clubs.[96] However, I have not found any evidence in the sources of exclusively Jewish trading clubs. The documents of the Portuguese-Jewish share traders Jacob Athias and Manuel Levy Duarte show that they frequented trading clubs, but these clubs were not attended solely by members of the Jewish community. True, however, most participants of these particular meetings were Portuguese Jews.[97]

I have found direct evidence of one trading club: the *Collegie vande Actionisten*, which existed from at least 1672 until 1678. The club's name – meaning corporation of share traders (*actionist* is derived from *actie*, the seventeenth-century Dutch word for share) – was official, for traders mentioned it in a court case.[98] The traders gathered in the inn De Plaetse Royael on Kalverstraat in the evening. The inn stood at the corner of Kalverstraat and Papenbroekssteeg (nr. 5 on Map 1.2), the latter named after the family who owned the inn in the seventeenth century. The inn had the perfect location to attract the stock exchange crowd: it stood exactly halfway between the Exchange and Dam Square. In 1747, the owner of De Plaetse Royael expanded the inn (which had been transformed into a coffeehouse) and customers could now also enter via Beurssteeg, the bent street that directly connected the Exchange to Dam Square – the favorite location of several notaries who specialized in trade-related deeds. The inn was thus located at the very heart of Amsterdam's financial district.[99]

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[95] The Paris Bourse was the first to impose a type of access restrictions. From the 1720s onwards, the Paris Bourse was publicly accessible (albeit for men only), but only the official *agents de change* were allowed to perform transactions: Eugene N. White, 'The Paris Bourse, 1724-1814: Experiments in microstructure', in: Stanley L. Engerman et al. (eds.), *Finance, intermediaries, and economic development* (Cambridge 2003) 34-74, there 42. The London Stock Exchange set up membership requirements on its foundation in 1801. In the preceding years, people already had to pay a fee to enter the exchange building: Ranald C. Michie, *The London stock exchange. A history* (Oxford 1999) 35.

[96] Israel, 'The Amsterdam financial crash of 1688', 472-4. Israel bases his argument on De la Vega's *Confusión de confusiones*.

[97] Jacob Athias and Manuel Levy Duarte kept ledgers of their dealings in trading clubs: SAA, PIG, inv. nrs. 687-8.

[98] Cf. footnote 101.

[99] Jaap Verseput at the Amsterdam City Archives helped me find the exact location of De Plaetse Royael. Information on the expansion of the inn and its proprietors: transcript of a deed in the register of discharges (27 January 1747), SAA, Registers of discharges, book 121, fo. 196v-7v.

There are few direct references to these trading sessions in the sources.[100] Anthony Alvares Machado and Hubertus Pollius made a deal there on a Monday night in early August 1678. They described the inn, in a court case that arose from a conflict over the contingency claim in their contract, as a place where a lot of trading in VOC shares took place.[101] Jeronimus Velters wrote to one of his correspondents that he had visited De Plaetse Royael on 26 February 1672 to trade shares. Interestingly, he had also been in the Exchange and on Dam Square to trade shares that very same day.[102] It could well be that this was the same trading club where Athias and Levy Duarte regularly traded shares; the names of Velters and Machado also turn up in the ledger they kept of the trading sessions. If this is true, then the *Collegie* was a predominantly Jewish affair; the names in the ledger are largely of Sephardic origin. The fact that Velters went to De Plaetse Royael on a Friday night is inconsistent with this line of reasoning, however. The Jewish Sabbath starts from sundown on Friday night, which must have happened too early in February for the Jews to attend the trading session. It is also possible that the trading sessions took place every night; I have not been able to discern a pattern in the dates of the sessions that would contradict this. The Friday night sessions would then have differed from the sessions on other nights by there being no Jews present.

The scarcity of references to the nightly trading sessions might indicate that there was some kind of private regulatory mechanism in place. The word *collegie* implies that the meetings had an official character, with some kind of committee that organized and chaired the meetings. It could well be that this committee also adjudicated conflicts. This point takes up a large part of chapter 3, but it is important to stress at this point that peer pressure and easy monitoring reduced the chances of reneging and hence of costly litigation. If peer pressure alone could not prevent a conflict from arising, the presence of the board could prevent the necessity of filing an official lawsuit. Moreover, the high concentration of information in the *collegie* –

[100] Apart from the two examples in the text, I have found only an attestation before a notary public that mentioned De Plaetse Royael as the place where two traders had met: attestation Samuel Pereira (25 October 1672), SAA, Notaries, inv. nr. 2240, p. 400.

[101] Anthony Alvares Machado and Hubertus Pollius had agreed in the *collegie* on a forward deal that led to a conflict. This deal was contingent on a possible peace treaty between the Dutch Republic and France (and its allies) in the Franco-Dutch War (1672-8), but dissension arose between them over the definition of peace: Anthony Alvares Machado *vs.* Engelbert de Geyselaar (guardian of Pollius' heirs), NA, Court of Holland, inv. nr. 816, nr. 1681-55.

[102] Velters to Buijsero, 26 February 1672, SAA, Velters, inv. nr. 1, fo. 252. Velters also regularly went to Dam Square in the evenings, which suggests that there must have been parallel evening trading sessions.

brought together by all its members – reduced the traders' search costs. There was less need for individual traders to gather as much information as possible, for the transactions during the trading sessions would disclose the available information. Lastly, the concentration of traders made it easier to find a counterparty willing to trade. Brokerage services were simply redundant within the *collegie*. The advantages of trading clubs such as the *collegie* can thus all be translated into transaction-cost benefits: information costs were lower and chance that enforcement of a deal would require costly litigation was smaller within the trading club.

Besides the *collegie*, and possibly similar trading clubs, there existed another gathering of share traders: the monthly *rescontre**. Every holder of a forward contract that was due on the first day of the next month could participate in the *rescontre*; traders came together in the *rescontre* to mutually settle their forward contracts. It was of course also possible to negotiate a rollover for a forward during the meetings and, since there were many traders present, it is also likely that traders made all kinds of other deals. Still, however, the *rescontre* was principally a meeting for settling contracts, rather than a sub-market in its own right, such as the trading clubs.

To understand the *rescontre*, it is important to trace the evolution of the use of the word throughout the seventeenth century. The general meaning of *rescontre* is 'meeting'.[103] Merchants gave the word a more specific meaning, using it mainly to describe the meeting of two traders on the expiration date of a contract to settle the contract or even more specifically to cancel out a transaction with another transaction. The earliest mention of the word *rescontre* in connection with the share trade, dating from 1610, had the latter meaning: Franchoijs Alewijnsen informed his counterparty that he wanted to settle their contract; if they would not come to an agreement, he would try to resell his contract or cancel it out by making an opposite transaction, which he called *rescontreren*.[104] From around the 1660s onwards, *rescontre* gained yet a different meaning. It was now also used metonymically to refer to the meeting where share traders gathered to settle their contracts. So it was no longer a meeting between

[103] In seventeenth-century Dutch, the word *rescontre* (*riscontro* in Italian; *rescontre* seems to be a gallicized loan word) was often used in the description of battles – the place where two armies meet.
[104] Alewijnsen had bought a forward. He could cancel it out by selling a similar forward to a third party. *Insinuatie* Franchois Alewijnsen (28 April 1610): SAA, Notaries, inv. nr. 120, fo. 9v. See also Van Dillen, 'Isaac le Maire', 87 (doc. nr. 29).

two traders who had a contract between them; sources now refer to *the rescontre* – monthly meetings that took place on the last Thursday of each month.[105]

The settlement procedure of the *rescontre* had its roots in late medieval trading: there were settlement meetings for merchants with bills of exchange during the Champagne fairs. At that time, however, the *rescontre* was a quarterly event. The merchants met in February, May, August and November; unsurprisingly, these were the exact same months in which the *rescontre* of the Amsterdam share trade took place in the eighteenth century when the frequency had been decreased to quarterly *rescontre* days.[106] The system of fixed settlement dates had been very advantageous to late medieval trading: it simplified international payments because a large number of merchants from all parts of Europe came together at the same location, all holding payment orders that were due in the same month. Continuous trading, which first appeared in sixteenth-century Antwerp, technically rendered the settlement dates superfluous. Nevertheless, they stayed in existence, mainly because the concentration of trade provided advantages.[107]

This was also true for the share trade. It was advantageous to have many contracts that were due on the same day, because this made it easier to settle them by cancelling out two contracts, which only required a relatively small money payment. But to get a high number of contracts that were due on the same date, the forward trade first needed to become standardized. Signs of a process of standardization are visible in the printed contracts used in the trade. On the earliest printed forward contract that has survived until today, dating from 1629, only the standard forward transaction clauses appear pre-printed, stipulating for example that the seller could deduct any interim dividend from the forward price. There were open spaces for the contractors to enter their names, the forward price, the interest rate on the possible dividend deduction and the term of the contract. The settlement date was thus calculated as the contract date plus a certain term.[108] A printed forward contract from 1644 shows that traders could now choose to specify the contract's term or its exact settlement date (see

[105] E.g. 28 October and 30 December 1683: SAA, PIG, inv. nr. 688, fo. 7, 15. 21 August 1687: SAA, Velters, inv. nr. 4, fo. 62. 26 August 1688: SAA, Notaries, inv. nr. 3704, fo. 448. 27 January 1698: Dias Henriques to Levy Duarte, 27 January 1698, SAA, PIG, inv. nr. 681b, pp. 162-3. It is unknown where the *rescontre* meetings took place. It is possible that the *rescontre* traders met in the Exchange, but since this was a very crowded place, it is more plausible that they met in a separate room of an inn.
[106] Smith, *Tijd-affaires*, 130.
[107] Interestingly, in a sense, the *rescontre* days have survived until today; around the world, option contracts expire on the third Friday of the month.
[108] A picture of this contract can be found in: Gelderblom and Jonker, 'Amsterdam as the cradle', 199.

Figure 1.1).[109] From at least 1683 onwards, however, the settlement date was always the first day of the month: *primo* was pre-printed, followed by an empty space where the contractors could write down the month.[110] Between 1683 and 1688, a clause was added to the bottom of the printed forward contracts in order to make sure that the *rescontre* proceeded smoothly. It specified the terms of delivery and payment of a share. A transaction should always be completed (i.e. transferred, rolled over*, cancelled out or paid for the price difference) 20 days after the original expiration date. This enabled the traders to submit the share or the rollover* to the next *rescontre* meeting.[111]

The printed contracts are a usable indication for the changing customs on the forward market, but it was of course not the book printer responsible for printing and selling these contracts, Aart Dirksz. Oossaan (whose shop was located right by the Exchange building on the corner of Dam Square and Beurssteeg) or the city authorities that initiated these changes. On the contrary, the developments in printed contracts followed on developments in trading customs. Notarial deeds show that the forward trade became standardized from the 1660s onwards, when forward trades had almost without exception the first day of a month as settlement date.[112] The standardization of the 1660s paved the way for *rescontre* meetings.

Data from the transfer registers from the Amsterdam chamber of the VOC corroborate this dating. I will elaborate further on this in chapter 2, but a quick glance at Figure 2.3 (page 78) reveals my point: the first days of March, May, September and November of 1667 witnessed a higher than average number of share transfers. The November peak is particularly interesting: the return fleet had arrived in the previous month, generating a lot of information relevant to the share trade.[113] However, share

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[109] Contract between Willem Muijlman and Philips de Bacher (2 September 1644), NA, Case files, inv. nr. IIB274.

[110] Contract between Vincent van Bronckhorst and Sebastiaen Cotinho (25 June 1683), NA, Case files, inv. nr. IIK98. Please note that the dates mentioned are not (necessarily) the dates when the new forms started to appear. Since very few forward contracts have survived, I am not able to date these events more precisely.
As a result of two bye-laws of 1689, the local courts of Amsterdam refused to judge in conflicts where no official printed contracts existed. The city authorities wanted to oblige the traders to use the official contracts, for they had just imposed a tax on share transactions and the most workable way to collect this tax was to put a levy on the contracts. Consequently, this forced the traders to pick the first day of the month as settlement date for their transactions. Noordkerk, *Handvesten* II, 1071.

[111] Contract between David Abraham Cardoso and Jan Schott (14 June 1688), SAA, PIG, inv. nr. 654.

[112] SAA, Notaries, Card index. Please note that the original contracts were not registered with a notary. These data stem from so-called *insinuaties*, where one of the contracting parties summons the other party to perform a certain action.

[113] Exact arrival dates: October 9th (3), 10th (1), 21 (1), 22 (1), 25 (4): Data about all VOC voyages can be found in: J.R. Bruijn, F.S. Gaastra and I. Schöffer, *Dutch-Asiatic shipping in the 17th and 18th centuries* (3

traders did not react to the new information in the spot market; they bought forwards that were due on November 1. This enabled them to trade on the information with low transaction costs: chances were high that they would find somebody in the *rescontre* to settle their contract with. However, it could occur that transactions could not be cleared or that traders could not find a counterparty to roll over their contracts. Consequently, the impact of the *rescontre* on the number of share transfers is visible in the number of share transfers around the first days of the month. A similar pattern of transfer peaks during the first days of a month is not visible in, for example, the graph of 1639 (Figure 2.2, page 77), which gives evidence for my argument that the *rescontre* did not exist yet in that year.

The concentration of traders in the *rescontre* provided liquidity to the forward market. Forward price data show that share traders recognized this advantage and they were willing to pay a liquidity premium for participating in the forward market. Over the period 1675-94, the premium on forwards that were due in one or two months' time, converted into a yearly rate, ranged from 3 to 8 percent, whereas forwards due within two weeks' time had premiums of between 15 and 20 percent.[114] This difference can have been caused only by a liquidity premium. The liquidity premium was similar for short- and longer-term contracts, but it had a relatively larger weight in the short-term contracts.[115]

The *rescontre* thus yielded much the same advantages as the *collegie*. It provided liquidity and the deals that were made during the meetings revealed information to other participants. The *rescontre* meetings thus reduced transaction costs. However, because the *rescontre* was not a sub-market, brokers' services were still needed for the forward deals that were concluded outside the meeting. In the case of the *collegie*, on the other hand, brokers' services were redundant; there was no need for intermediaries to bring parties together nor was it necessary to buy information about a possible counterparty's creditworthiness – the structure of the trading club made sure that

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vols., The Hague 1979-87). I will hereafter refer to this source as 'DAS'. The data can also be accessed online: http://www.inghist.nl/Onderzoek/Projecten/DAS

[114] On 25 July 1687, for example, the spot price was 485.5 and the price for a forward due on August 1st, 6 days later, 487. The forward premium, converted into a yearly rate, is 18.8 percent. The data can be found in Velters' letter books: SAA, Velters archive (2), inv. nos. 1-4.

[115] This becomes clear by writing the price of a forward contract in an equation. The price of a forward that is due at a future time T can be written as follows: $F_{t,T} = S_t e^{r(T-t)}$, where S_t is the spot price of the share at time t and r is the interest rate. If a liquidity premium l is added, the pricing equation becomes: $F_{t,T}^{*} = S_t(1 + e^{r(T-t)})$. This equation clearly shows that the liquidity premium l has a relatively larger weight in short term contracts, where $(T-t)$ is small. (I owe this point to Peter Koudijs.)

traders would live up to their agreements. I have not found indications of access restrictions – other than holding one or several forward contracts – to the *rescontre* meetings. There is evidence, however, that in the eighteenth century a distinction was made between 'qualified' and 'non-qualified' *rescontre* participants[116], which suggests that the *rescontre* traders also recognized the advantages of an admission policy that created better monitoring possibilities. Interestingly, the developments of both the *Collegie vande Actionisten* and the monthly *rescontre* meetings therefore trace the origins of modern stock exchanges where entrance is restricted to professional traders who are affiliated to financial institutions that pay fees to be allowed to trade on the exchange.[117]

Conclusions

This chapter has discussed the main developments that shaped the market in the seventeenth century. After a first formative stage in the first decades of the seventeenth century, the market entered into a second stage of development in the period 1630-50. New participants entered the market, where brokers and market makers stood ready to assist them in contracting a deal. In the years thereafter, the trading clubs enabled the market to process the increasingly complex nature of the trade.

It is interesting to remark that the share traders themselves initiated all developments that took shape after 1610. The corporate governance debate of the 1620s could have resulted in greater involvement in the share market on the part of the company, but it seems as if the outcome of the debate was rather a state of mutual disregard. The shareholders, for their part, were highly interested in the company's dividend distributions, but it hardly mattered to them that they did not have a say in the company management, nor that they only received scattered bits of information about the financial state of the company. After the period 1630-50, investors were

[116] Smith, *Tijd-affaires*, 135-8.

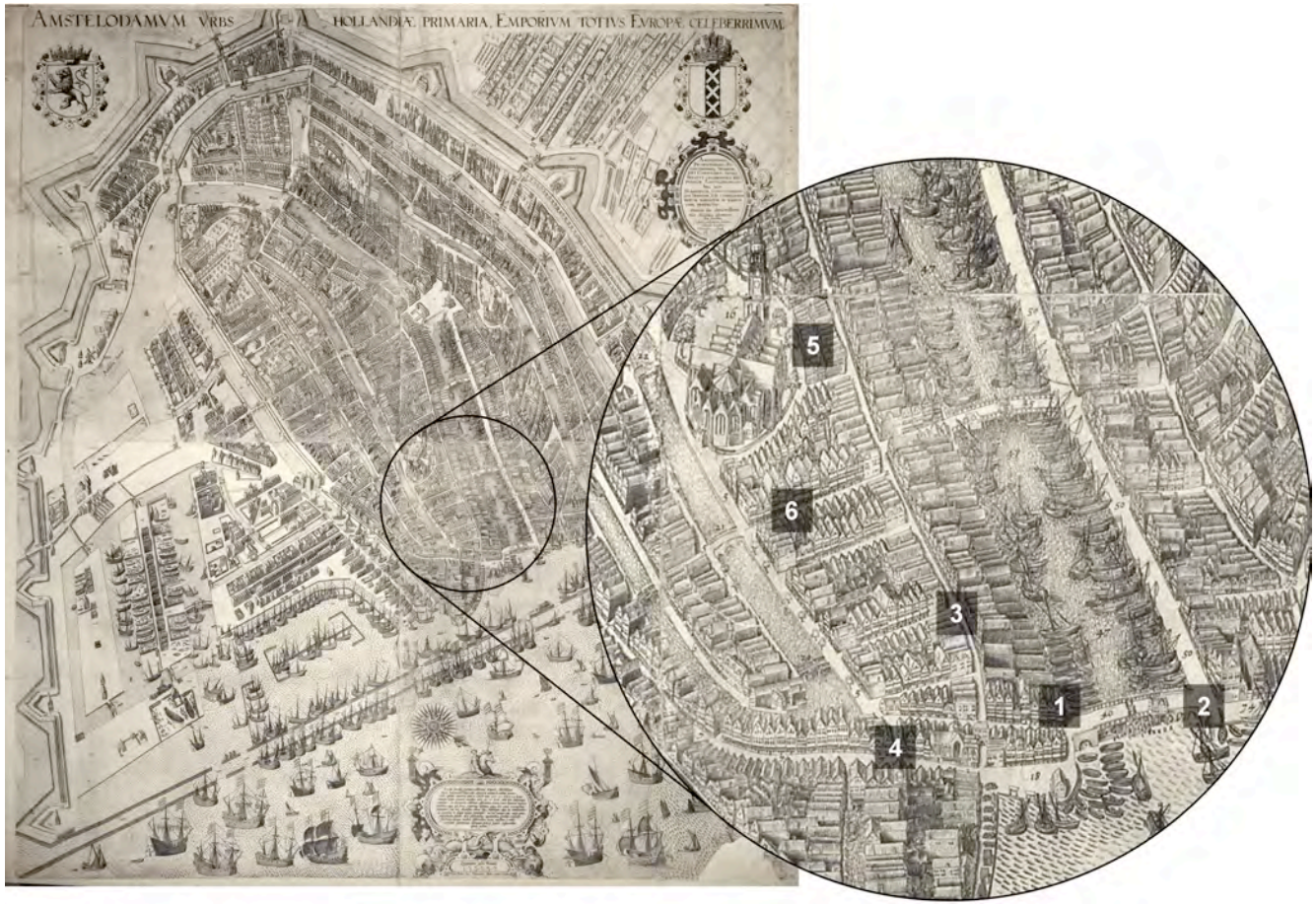
[117] Several authors have stressed the importance of the emergence, in 1683, of trade in *ducaton* VOC shares – shares with a nominal value of *f* 300 instead of *f* 3,000 – that was also organized in a club-like environment. This development would have attracted new participants to the market: Israel, 'The financial crash', 464. Swetschinski, *Reluctant cosmopolitans*, 145-6. Van Dillen, 'Termijnhandel', 520. Their information is based on De la Vega, *Confusión de confusiones*, 203. See also: Smith, *Tijd-affaires*, 94. The trade in *ducaton* shares did not differ substantially from the trade in trading clubs. It was not a structural development, but merely a convention to trade smaller shares, which might incidentally have lowered barriers to entry in the market: Gelderblom and Jonker, 'Amsterdam as the cradle', 199. Moreover, the *ducaton* trade vanished as a result of the 1688 price crash (De la Vega, *Confusión de confusiones*, 288) and seems to have hardly impacted the trade in the years before – I have found only one reference to *ducaton* trade in the sources: attestation (23 March 1688), SAA, Notaries, inv. nr. 4132.

primarily interested in the financial services the secondary market provided, rather than in the East India trade itself.

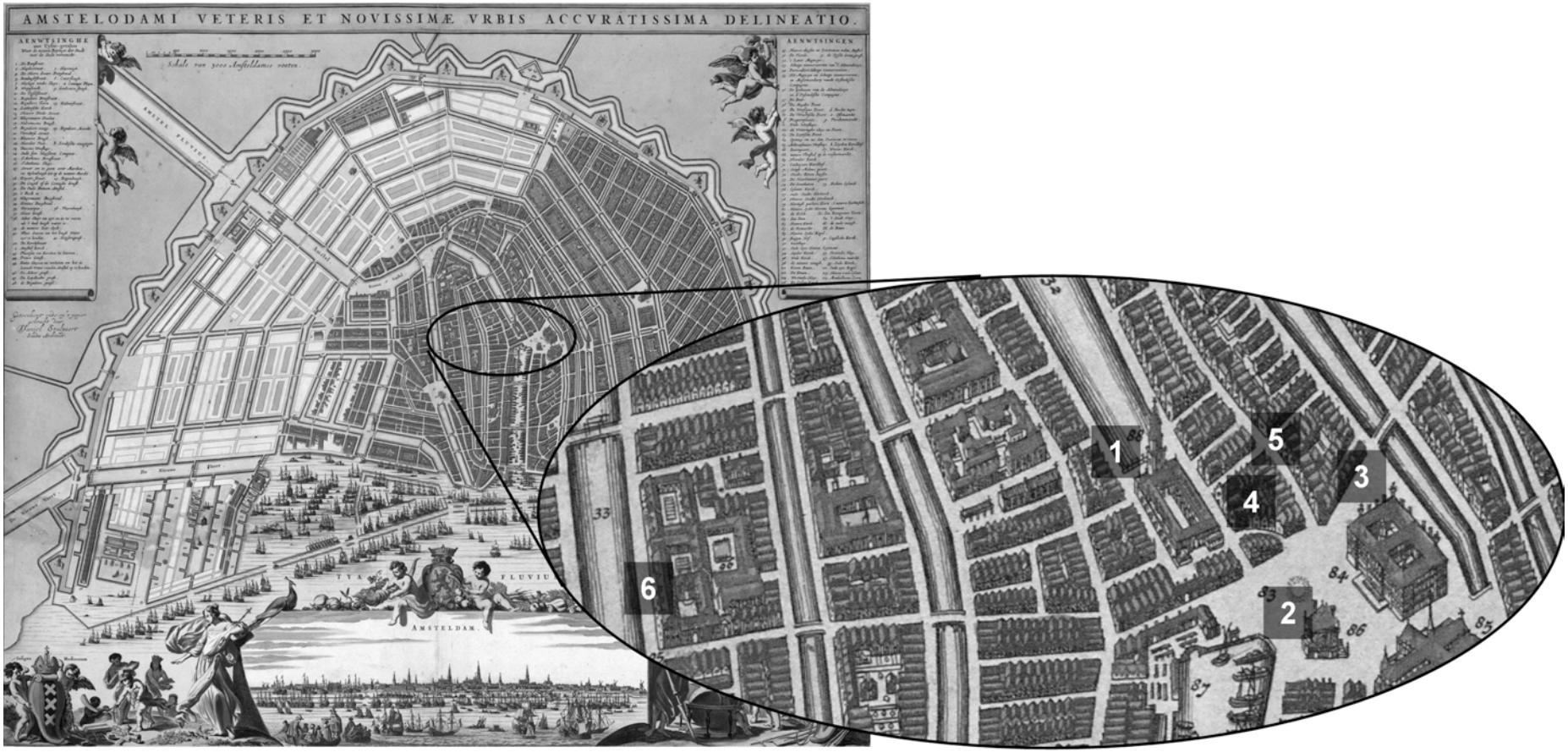
Figure 1.1 Forward contract used in a transaction between Willem Muijlman and Philips de Bacher, 2 September 1644
Nationaal Archief, The Hague, Case files, IIB274

Figure 1.2 Amsterdam Exchange of Hendrick de Keyser, etching by C.J. Visscher (1612) Stadsarchief Amsterdam, Drawings and etchings collection

Figure 1.3 Amsterdam Exchange of Hendrick de Keyser, interior, painting by Job Adriaensz. Berckheyde (between 1670 and 1690)
Amsterdams Historisch Museum, Amsterdam



Map 1.1 Main share trade locations in the first decade of the seventeenth century
1) exchange dealings on Nieuwe Brug (east side); 2) Paelhuysgen – international postal services; 3) exchange dealings in Warmoesstraat; 4) St. Olofs-chapel; 5) Old Church; 6) notary Jan Fransz. Bruyning's office. Map used: Pieter Bast, Map of Amsterdam (2nd ed. 1599), Kunstsammlungen der Veste Coburg, Coburg, inv. nr. VIII, 512, 1



Map 1.2 Main share trade locations after the opening of the Exchange (1611)
1) Exchange; 2) Dam Square; 3) Exchange Bank; 4) principal notaries' offices; 5) Kalverstraat inns; 6) East India house. Map used: Daniel Stalpaert, Amstelodami veteris et novissimae urbis accuratissima delineatio (1662), Cartographic collection, University Library, University of Amsterdam

2 LONG-TERM DEVELOPMENTS

Introduction

The discussion of the development of the market of the previous chapter will be complemented in this chapter using long-term data. Using transfer, price and dividend data, I will show that the Amsterdam market entered a second stage of development in the 1630s and 1640s. The data suggest that during these decades the market transformed from a place where traders occasionally transferred a share, into a full-fledged financial market, characterized by a high level of market activity and a growing share of speculative transactions with short-term investment horizons. The last section of this chapter will use price data from the shares in the smaller chambers of the VOC to show that by 1650, the transformation of the Amsterdam market had become indisputable.

Market activity

For a large part of the seventeenth century, the capital books of the Amsterdam chamber of the VOC have survived.[1] Despite their shortcomings, which I have discussed in the Introduction (see section Sources on page 9 ff.), this source can still be used for two purposes. Firstly, the data from the capital books allow for a – albeit incomplete – comparison of market activity in several years during the seventeenth century. If more shares were transferred in, say, 1667 than in 1639, this indicates that market activity had increased. The absolute growth cannot be determined, and the higher number of transfers could merely be a sign that share traders had shifted from spots to repos, leading to a higher number of share transfers – a single repo transaction required at least two transfers. Secondly, and more accurately, the capital books yield data on the dates when transfers were registered in the East India house. Peaks in the share transfer register are an important indication of the character of the share trade, because the primary motivations for transactions can be deduced from them. Several checks throughout the seventeenth century have shown that the entry dates in the company records never differed by more than three days from the dates in shareholders' private records. And if the dates differed, the VOC register generally predated

[1] For the period 1602-12, only the transaction ledger has survived, listing all share transfers chronologically. From 1628 onwards, only capital books, containing the accounts of all shareholders, are available: NA, VOC, inv. nrs. 7066-72. The shareholder records of the years 1613-28 have not survived.

the merchants' own accounts, suggesting that the company bookkeeper registered the correct date, whereas shareholders procrastinated over updating their records.[2]

Figures 2.1-5 depict the share transfer patterns for 1609, 1639, 1667, 1672 and 1688, respectively.[3] The columns (left-hand scale) show the number of transfers and the line (right-hand scale) the nominal value of these transfers. I have split up the years in five-day periods, because one of the purposes of these graphs was to trace when the *rescontre* meetings started to convene and what their impact on the share market was. For that reason, it is necessary to always discern the last and first days of a month in a separate column: all contracts entered into the *rescontre* were due on the first day of the next month, so it is to be expected that the effects of the *rescontre* are visible in the first few days of the month, but not necessarily on the first day. The disadvantage of five-day periods, on the other hand, is that some include a Sunday, when the East India house was closed, while others do not. This does not render the data useless, however, because the trade nevertheless continued on Sundays. The Sunday trades were probably entered into the capital ledger on the following Monday. So, only for the five-day periods including a Sunday, that did not also include a Monday (one out of five of the five-day periods), the number of transactions is probably too low. This issue notwithstanding, five-day periods are still preferable over seven-day ones, because they are more suitable to capture the first days of a month in a separate period. Choosing seven-day periods would imply a monthly residual category of either three or four days – except for February. I have therefore decided to split up the months in six five-day periods, or five five-day and one six-day, or, in the case of February, five five-day and one three- or four-day period.

Comparing Figures 2.1-5 yields a number of results. First of all, market activity increased considerably over the seventeenth century. More specifically, the number of share transfers doubled between 1609 and 1639 and again doubled between 1667 and 1672. In 1609, the bookkeeper registered on average five share transfers per five-day

[2] E.g. the share purchase by Jacques de Velaer, mentioned in a letter to his uncle on 13 January 1609, was registered in the VOC books on 12 January: BT, 215, A2/9 and NA, VOC, inv. nr. 7066, fo. 148. Louis Trip's journal entry of 5 March 1664 lists a number of share transactions of the previous months. Trip registered his purchase of a *f* 3,000 share from Arnout de Raet on 3 March, whereas it appears in the capital book on 29 February: SAA, Merchants' accounts, inv. nr. 50, 5 March 1664 and NA, VOC, inv. nr. 7070. The dates of the share transactions of Joseph Deutz, finally, never differ by more than one day. His sale to Guilliam de Vicq and purchase from Jan Looten are listed on 12 February 1672 in the company register and on 13 February in his private records. On 16 February, he bought a share from Gerrit Bode and sold one to Balthasar da Cunha. Both are registered on the same date in both the company books and his ledger: SAA, Deutz, 293, fo. 31 and NA, VOC, inv. nr. 7070.

[3] See the Introduction for a discussion on the choice of these sample years.

period. By 1639, this number had increased to almost ten per five-day period, while in the next thirty years, the average number of share transfers per five-day period saw only a small increase, to almost 13 in 1667. Only five years later, in 1672, this number had almost doubled to more than 22.25 transfers per five-day period. In 1688, on average 18.75 share transfers were registered per five-day period. Secondly, the pattern of share transfers over the year changed. This is related to the growing importance of the forward market and the monthly *rescontre*. Finally, with the exception of 1672, in all these sample years the summer months saw less activity in the transfer registers. This is remarkable, as the VOC return fleets generally arrived in the Dutch Republic during the summer months.[4] Possible explanations could be that commodity trade demanded more efforts from the merchants during these months, or that the wealthiest share traders spent the summer outside Amsterdam. War and political unrest in 1672 explain the remarkably high number of transfers in that year's summer.

The increase in number of share transfers in the periods 1609-39 and 1667-72 needs to be explained. Clearly, the 1609-39 increase is less sensational than the 1667-72 one: the period during which the number of share transfers doubled was six times longer. The 1609-39 increase followed from the regular dividend distributions that started in the 1620s. Around 1630, moreover, a clear legal framework took away any legal doubts that traders could have about the share trade, which encouraged new participants to enter the market.[5] The 1667-72 increase, on the other hand, partly reflects the stock market boom of 1671 (the share price reached its highest point during the seventeenth century in early July 1671: 566%[6]) and the subsequent shock that the year 1672 brought about. The wars and political unrest of 1672 influenced investors' expectations regarding the price of VOC shares, which led to increased trading activity since not all investors interpreted the news in the same way.

However, there was yet another reason, directly linked to that year's large price movement, why the number of share transfers increased so much in 1672. The high price volatility made forward traders aware of the counterparty risk of their transactions. They therefore shifted part of their activity to the repo trade.[7] Each repo required two share transfers and hence the price fluctuations of 1672 led to a marked

[4] Gaastra, *De geschiedenis van de VOC*, 101.
[5] See, for the legal framework, chapter 3, section The legal framework on page 97 ff.
[6] SAA, Velters, inv. nr. 1, fo. 212. The share price reached this peak once more on 13 March 1688: SAA, Velters, inv. nr. 4, fo. 78.
[7] See chapter 4, section Counterparty risk on page 120 ff.

increase in share transfers. In 1688, the share price made sharp movements only from late August until the end of October, which explains the slightly lower number of transfers in that year.

Focusing on the peaks in these graphs, it is clear that two five-day periods in 1609 (July 1–5 and August 11–15) were characterized by higher than average trade. These peaks were caused by the first news about the return fleet and its subsequent safe arrival in the Netherlands, respectively.[8] Apparently, news about return fleets, the main indication of the company's well-being, heavily influenced investment decisions. This indicates that the traders used the secondary market for long-term investments. 1639 saw increased activity in the transfer registers from January 21–25 and June 21–25. The high number of trades in January was probably due to the departure of ten ships destined for the East Indies a week earlier. The June peak may reflect the arrival of the first pieces of information about the return fleet that was expected to return to the Dutch Republic a month later.[9] To be sure, I do not argue that information influencing the long-term outlook of the company was the only driving force behind transactions in VOC shares, but Figure 2.1 and Figure 2.2 clearly show that the arrival of news about the return fleet induced investors to trade more frequently than in other periods.

By 1667, however, this situation had changed, as can be seen from the rather different transfer pattern in Figure 2.3. This graph clearly shows that more shares than average were transferred in the first five-day period of each month. Especially the first days of March, May, September and November of this year witnessed a high number of share transfers. The peak in the number of share transfers in the first five days of November is particularly interesting. In the preceding month, ten ships from the East Indies had arrived safely in the Dutch Republic.[10] However, the reaction of the share traders on the arrival of the return fleet is visible only in the first days of November. This means that the traders traded on the new information in the forward market. It also indicates that the *rescontre*, where transactions that were due on the first day of the next month were settled, was in full force by 1667 and that it had a considerable impact on the number of share transfers – even though the lion's share of the deals the

[8] Letters De Velaer to l'Empereur, 23 July 1609, BT, inv. nr. 215, nr. A4/1; 1 August 1609, BT, inv. nr. 215, nr. A4/2; 6 August 1609, BT, inv. nr. 215, nr. A4/4; 15 August 1609, BT, inv. nr. 215, nr. A4/5. Four ships arrived on 7 and 9 August 1609: DAS.
[9] DAS.
[10] Exact arrival dates: October 9th (3), 10th (1), 21 (1), 22 (1), 25 (4): DAS.

rescontre traders made never ended up in the transfer registers. Put another way, the forward market had surpassed the spot market in importance.

The graphs depicting the share transfers in 1672 and 1688 (Figure 2.4 and Figure 2.5) must be interpreted differently. Both years witnessed major price falls, caused by war (in 1672) and rumors about an imminent invasion of England (in 1688).[11] In these years, the peaks in the number of share transfers can be linked to political and military events. The peak in March was a reaction to the start of the war with England; in early April, France declared war on the Netherlands; on June 12, foreign armies entered the Dutch Republic near the village of Lobith; and finally, the peak that occurred in the five-day period of 16-20 August 1672 (49 share transfers) coincided with the murder of Johan and Cornelis de Witt.[12] The share traders were fully focused on political events; the arrival of the return fleet on 3 August is not visible in the transfer data, even though this must have been a relief to everyone with an interest in the East India trade, for England had of course intended to attack the VOC return fleet.[13]

The high number of share transfers between the end of August and mid-October 1688 reflects the turmoil on the secondary market for VOC shares caused by rumors about Stadholder William III's plans to invade England. These were only rumors; the preparations for the invasion had started as a private undertaking of William; only a few insiders knew about it. Interestingly, the transfer register data also clearly show that the rumors became confirmed information directly after William had presented his plans to several political bodies for support. The States of Holland approved the recruitment of foreign troops on 22 September and the Amsterdam city magistrate gave its assent to William's plans on the 26th.[14] This immediately led to increased trading activity.

The analysis of the capital ledgers of the Amsterdam chamber of the VOC has thus yielded two results. Firstly, market activity increased markedly between 1610 and 1640, caused by regular dividend distributions and legal certainty, and again between 1667 and 1672, caused by a speculative boom and a growing preference for repo transactions. Secondly, the transfer data indicate that trading activity during *rescontre*

[11] See chapter 5, section Market reactions to information on page 156 ff.
[12] Jonathan I. Israel, *The Dutch republic: its rise, greatness, and fall 1477-1806* (Oxford 1995) chapter 31.
[13] 14 ships arrived safely in Eems: DAS.
[14] Petra Dreiskämper, *Aan de vooravond van de overtocht naar Engeland: een onderzoek naar de verhouding tussen Willem III en Amsterdam in de Staten van Holland, 1685-1688*, Utrechtse historische cahiers 17, nr. 4 (1996) 66-7.

meetings had become very high by 1667. Clearly, the bulk of the share trade now took place on the more speculative and short-term horizon forward market. Investors no longer bought a share to hold on to it for a prolonged period of time, but actively traded short-term transactions on the financial market.

Number of traders

The capital books can also be used to estimate the number of active traders in a certain year. Again, the actual number of traders who participated in the secondary market for VOC shares was probably much higher than the number of traders who were involved in one or several share transfers – traders who managed to settle all their derivatives contracts through money settlement do not appear in the transfer registers – but the transfer data allow for the best possible estimation.

Year	*Number of accounts*	*Number of active accounts*	*Number of share transfers*
1602	1143		
1609		276	368
1639		264	713
1667		347	934
1672		521	1604
1688		436	1350
1679 -1695	1770		

Table 2.1 Total number of shareholders' accounts, Amsterdam chamber VOC, 1602 and 1679-1695; number of active accounts and share transfers, 1609, 1639, 1667, 1672 and 1688
Sources: Van Dillen, *Aandeelhoudersregister*. NA, VOC, inv. nrs. 7066, 7068, 7070-2.

Table 2.1 lists the data I have collected about the total number of shareholders' accounts and the number of active accounts for several years throughout the seventeenth century. In 1602, 1143 investors subscribed to the capital stock of the Amsterdam chamber. The number of shareholders increased over the seventeenth century to 1770 in the period 1679-95. Each year, only part of the shareholders transferred a share in the capital books. In 1609, 276 shareholders transferred at least one share. This number decreased to 264 in 1639, went up to 347 and 521 in 1667 and 1672, respectively, and fell back to 436 in 1688.

The increase between 1639 and 1667 equals the increase in the number of share transfers. The increase in the number of active accounts between 1667 and 1672 was relatively smaller than the growth in the number of share transfers, which can be explained by the fact that traders shifted to repo transactions, requiring relatively more share transfers. The difference between 1672 and 1688 can again be explained by a decreasing number of share transfers. The number of transfers per shareholder thus stayed more or less the same over this period.

So, what really needs to be explained is the difference between 1609 and 1639. In 1609, 276 shareholders transferred 368 shares, whereas 264 shareholders transferred 713 shares in 1639; fewer shareholders transferred almost twice as many shares. From the 1630s onwards, a small number of shareholders accounted for a large proportion of the total number of share transfers. In 1641, for example, the thirteen most active shareholders (with at least ten sales and ten purchases registered on their accounts) were involved in almost a third of all share transfers. In 1664, the fourteen most active shareholders (with at least fifteen sales and fifteen purchases) were involved in almost 40% of all share transfers.[15] In 1609, however, the distinction between active shareholders and less active shareholders was almost non-existent; there are a few accounts with frequent purchases and others listing frequent sales, but nobody both purchased and sold more than five shares.

These findings corroborate my view on the changing character of the share trade starting around 1630. In the earliest years of the secondary market for VOC shares, shareholders occasionally transferred their shares. Some shareholders either purchased or sold a higher number of shares, indicating that they expected the share price to rise in the future or that liquidity constraints or negative trading sentiment prompted them to liquidate large part of their share capital. From the 1630s onwards, however, certain shareholders started to both buy and sell large amounts of shares in the same year. Investors with short-term investment horizons had begun to dominate the market.

Share price and dividends

Figure 2.6 and Figure 2.7 depict the monthly price of voc shares in the Amsterdam chamber throughout the seventeenth century, which are also listed in Appendix A.

[15] NA, VOC, inv. nr. 7068, 7070. In an earlier stage of my research, I made these laborious calculations using 1641 and 1664 data. 1639 and 1667 are likely to yield similar results.

For months with multiple observations, I have calculated the average share price.[16] In Figure 2.6, missing values have been derived from linear interpolation; Figure 2.7 does not use interpolation, it shows how my observations are spread over the century. The dataset consists of 851 observations of spot prices. Figure 2.8 gives an impression of the variation in the share price. This graph shows the yearly high, low and average price.

The prices used to draw these graphs and listed in Appendix A are *ex*-dividend prices. So, for example in February 1688, the market price for shares on which 1449 1/6% of the nominal value of the shares had been collected as dividend since the first distribution in 1610 was 563.5%. On 15 April 1688, the company distributed another 33 1/3%. It took a while, of course, before all shareholders had collected their dividend, so for a period of two or three months, there were two kinds of shares in circulation: those on which 1449 1/6% dividend had been collected and shares on which 1482.5% had been received. Obviously, the price difference between these two kinds of shares amounted to 33 1/3%, which explains why share traders always mentioned the amount of dividend received on a certain share. The *ex*-dividend price did not always fall by exactly the size of the dividend, however. Dividend distributions also had an informational value – they informed investors for instance about the profitability of the company[17] – to which the market reacted.

The share price equals the present value* of all future dividends. Put another way, the share price reflects the market's expectations of dividends. Hence, Figure 2.6, showing the VOC share price 1602-98, reflects how the shareholders valued remaining dividends at any point in time during the seventeenth century. It cannot exactly be reconstructed how shareholders formed their expectations on remaining dividends, but previous dividends were undoubtedly a major factor in determining the expected size of dividends. These previous dividends (1620-99) are depicted in Figure 2.9. In this graph, dividends are expressed as a percentage of the nominal value of the capital stock. In 1625, for example, the VOC announced a dividend of 20% of the nominal value of the company stock. A shareholder who owned a share with a nominal value of ƒ3,000 could thus collect a dividend of ƒ600.

[16] For high-volatility periods (1664-5, 1672 and 1688), minimum and maximum instead of average monthly prices have been used to make the size of the price fluctuation visible in the graph. In August 1688, for example, the price dropped from 546.66% to 460%. The average price of my observations in this month is 493.73%, but I have used the 460% observation to make this month's price drop visible.
[17] See chapter 5, section Market reactions to information on page 156 ff.

At first sight, the dividends distributed by the VOC are impressive: a 60% dividend in 1671, for example, seems enormous. However, dividends expressed as a percentage of the nominal value of the shares do not reveal much about the actual impact of the dividend distribution. Dividend as a percentage of the market price is a better measure, because it allows for a comparison of the company's dividend distributions over time. Figure 2.10 depicts the dividends of the VOC as a percentage of the market price of the Amsterdam shares (1620-97). This graph clearly shows that the 37.5% dividend of 1620 was the largest in relative terms. The sequential dividend distributions of 1633, 1635, 1636 and 1637, moreover, are striking in size. These distributions coincided with the remarkable share price increase of the 1630s (see Figure 2.6); they clearly induced shareholders to update their expectations regarding dividends and hence about the share price.

Figure 2.11 takes the analysis one step further. It shows to what extent historical dividends determined the value of the VOC shares. The two lines of the graph are a ten-year moving average of the real dividend (dividend as a percentage of the market value of the shares) on the left-hand scale and the average yearly share price of the Amsterdam chamber VOC shares on the right-hand scale. The ten-year moving average real dividend is calculated by dividing the average nominal dividend over the previous ten years by the market price of the VOC shares in a given year. The value for 1670, for example, is calculated by dividing the average nominal dividend over the period 1661-70 by the market price of the VOC shares in 1670.

If shareholders indeed based their expectations of dividends in future years on the dividend they received in previous years, the share price and ten-year average of real dividends should move in tandem. Figure 2.11 shows that this was only partially the case for the seventeenth-century market for VOC shares. In the second half of the 1660s and the first years of the 1670s, for example, the average real dividend over the preceding ten years was very low (around 3% annually), but the share price did not make a downward correction until 1672 – a year in which the Dutch Republic was at war. The shareholders were apparently optimistic that the shares would yield a good return even if high dividend payments failed to occur. The data are inadequate to make firm statements, but it does seem that the VOC shares were overvalued shortly before the 1672 price crash.

On the whole, however, the share price adjusted with a short lag to fluctuations in the average real dividend over the preceding ten years. The share price rose

upwards around 1637, when the ten-year real dividend reached 6.6%. When the ten-year real dividend dropped back to around 5% from 1646 onwards, the share price followed with a similar movement in the next few years. Finally, focusing on the periods 1630-35, 1648-63 and 1689-98 reveals that the shareholders of the VOC made a downward adjustment of the discount rate* during the seventeenth century. During these three periods, the average dividend over the preceding ten years fluctuated around 5% annually, whilst the share price fluctuated around 200%, 400% and 500% in 1630-35, 1648-63 and 1689-98, respectively. Assuming that shareholders expected the real dividend to stay constant, these share price differences can only be explained by a change in the discount rate.[18] The development of interest rates charged on the Amsterdam capital market provides an explanation for the downward adjustment of the discount rate: the interest rate on private obligations declined from around 8% in the early seventeenth century to as low as 2.5-3% in the 1680s.[19] As money became cheaper, shareholders also required a lower return on their investment. The price pattern of VOC shares over the seventeenth century can thus partly be explained by the declining interest rate.

Divergent developments: Amsterdam and peripheral markets

The previous sections have shown that the periods before and after 1640 are separate stages in the development of the secondary market for VOC shares. This section will show that the development of the peripheral markets for shares in the five smaller chambers of the VOC kept up with Amsterdam until about the same time – 1640. Thereafter, however, the development of the Amsterdam market entered a second stage, whereas the smaller markets stayed behind.

The markets developed in tandem in the first years of the seventeenth century. In the period 1604-8, for example, about 30% of the capital stock of the Enkhuizen chamber was transferred. These figures are comparable to those of Amsterdam.[20]

[18] See, for the relation between dividends, the discount rate and the share price, the formula in footnote 31 on page 71.
[19] De Velaer to l'Empereur, 13 January 1609, BT, inv. nr. 215, nr. A2/9. SAA, Deutz, inv. nrs. 288, 291-5. See also, Gelderblom and Jonker, 'A conditional miracle'.
[20] René Th.H. Willemsen, 'Beleggers in een nieuwe compagnie: het aandeelhoudersregister van de Kamer Enkhuizen der VOC', in: Roelof van Gelder, Jan Parmentier and Vibeke Roeper, *Souffrir pour parvenir: de wereld van Jan Huygen van Linschoten* (Haarlem 1998) 65-79, there 77. Gelderblom and Jonker, 'Completing', 658.

Soon thereafter, however, the Amsterdam market started to develop relatively faster.[21] The Amsterdam stock was of course by far the largest, which naturally resulted in a larger market, but Amsterdam merchants also seem to have been more inclined to trade on the secondary market; Amsterdam merchants had initiated more than half of the transfers in the Enkhuizen chamber stock between 1604 and 1608.[22]

The higher trading activity in Amsterdam led to price differences between the shares in the Amsterdam chamber and shares of the smaller chambers. The share traders who petitioned against the proposed ban on short selling in January 1610 mentioned that the price of shares in the Amsterdam and Zeeland chambers was on average between 3 and 5 percentage points higher than the price of the shares in the other chambers.[23] A year and a half later, in September 1611, shares in Middelburg and Enkhuizen traded at 220%; about 4 percentage points lower than in Amsterdam. From that time onwards, Amsterdam shares would remain the most expensive.[24]

The price differences became remarkably big in the second half of the seventeenth century, as can be seen from Table 2.2 (on page 75), which lists the available price data for the Middelburg, Enkhuizen and Hoorn chambers, to which Amsterdam prices for the same months are added. The last column lists the relative difference between the price quoted in Amsterdam and the other chambers. I have not found any price data for the Rotterdam and Delft chambers. Figure 2.12 gives a graphic representation of these data. It clearly shows how the share prices started diverging after about 1650. Before that year, the relative price difference fluctuated between 1 and 3.5%. After 1650, however, the Enkhuizen and Hoorn shares were on average around 17% cheaper. The price difference with shares of the Middelburg chamber was even larger: 21% in 1660 and increasing to 33% after 1672.

The price gap between Amsterdam and Middelburg is especially remarkable. The Zeeland chamber had the second largest capital stock and its share price had kept up with Amsterdam in the first decade of the seventeenth century. The anonymous author of the 1688 pamphlet *De actionisten voor en tegengesproken* gave an explanation for the diverging prices. According to him, a tax on share capital, levied in Zeeland from

[21] Petition, 19 January 1610, published in: Van Dillen, 'Isaac le Maire', 54 (doc. nr. 9). Van Dillen, 'Termijnhandel', 513.
[22] Gelderblom and Jonker, 'Completing', 658.
[23] Petition, 19 January 1610, published in: Van Dillen, 'Isaac le Maire', 54 (doc. nr. 9). Van Dillen, 'Termijnhandel', 513.
[24] BT, inv. nr. 112 C2, fo. 7; inv. nr. 113, fo. 1.

1672 onwards, had caused the relative price fall of the Zeeland shares.[25] The Zeeland tax was a capital levy of 0.5%.[26] The company bookkeeper was responsible for the tax recovery; shareholders were taxed for the amount of shares registered under their name in the company's capital books.[27] VOC shares were taxed at 400% of their nominal value, so the tax burden was 2% on the nominal value of the share capital.

The other five chambers were located in the province of Holland, where a similar tax was not levied, but share capital in Holland was not exempt from capital levies either.[28] For certain years, the tax burden was even higher in Holland than in Zeeland, but what set the Zeeland tax apart was its structural character.[29] This induced shareholders to adjust their expectations on future returns and hence it brought the share price down. The authorities of Holland, on the other hand, announced the provincial capital levies irregularly – they levied a tax when they needed the money.

[25] *De actionisten voor en tegengesproken. Consideratien tot wederlegginge van de voorstellingen door de Heer Mr. Nicolaas Muys van Holy, opgestelt in zyne Memorie, om de Negotie van Oost en West-Indische Actien te beswaren met een Impost, ende in zijn nader geschrift van oplossinge van de difficulteiten, die hy segt by eenige gemaakt te zyn, tegens de selve Memorie* (Amsterdam 1688) 7.

[26] A so-called *tweehonderdste penning*: out of every two hundred pennies, one had to be paid as a tax to the provincial government (0.5%).

[27] This means that the tax applied to the total capital stock of the Middelburg chamber, hence shareholders from outside the province of Zeeland were also liable to pay the tax.

[28] In Holland, the following taxes were levied on share capital in the period 1672-88:

Announcement date	*Tax rate*	*Tax burden on nominal value*
15 VI 73	1%	4%
8 X 73	0.5%	2%
22 XII 73	0.5%	2%
20 XII 75	1%	> 4% - this tax was levied on the pre-1672 share price (i.e. > 400%)
19 III 1677	1%	> 4% - idem
30 VII 1677	0.5%	> 2% - idem
22 XII 1677	0.5%	> 2% - idem
20 VIII 1678	0.5%	> 2% - idem
29 III 1679	0.5%	> 2% - idem
31 V 1680	0.5%	2%
11 XII 1681	0.25%	1%
21 VI 1687	0.5%	2%

Source: Cornelis Cau (et al.), *Groot placaet-boeck, vervattende de placaten, ordonnantien ende edicten van de... Staten Generael der Vereenighde Nederlanden, ende van de... Staten van Hollandt en West-Vrieslandt* III (The Hague 1683) 1054-85; Cornelis Cau (et al.), *Groot placaet-boeck, vervattende de placaten, ordonnantien ende edicten van de... Staten Generael der Vereenighde Nederlanden, ende van de... Staten van Hollandt en West-Vrieslandt* IV (The Hague 1705) 921-2.

Until 1680, the tax was assessed on the basis of so-called *personele kohieren*, registers that listed the assessed wealth of taxable citizens. Hence, taxes were paid on the basis of the estimated value of shares and other property owned. In May 1680, the States General ruled that the real share capital should be taxed, so from now on shareholders were liable to pay tax on the basis of the amount of shares registered on their account in the capital books of the VOC. This instantly led to protests by moneylenders on whose accounts shares pledged as collateral were registered, but the States General did not make an exception for these shares R. Liesker and W. Fritschy, *Gewestelijke financiën ten tijde van de Republiek der Verenigde Nederlanden* IV *Holland (1572-1795)* (The Hague 2004) 224, 367. Van Dam, *Beschryvinge* 1A, 145. Cau, *Groot placaet-boeck* III, 1081-2.

[29] Wietse Veenstra, *Gewestelijke financiën ten tijde van de Republiek der Verenigde Nederlanden* VII *Zeeland (1573-1795)* (The Hague 2009) 188-9.

These unexpected capital levies decreased the value of an individual's current stock holdings, but they did not directly influence all future cash flows. So, in hindsight, although the tax burden on shareholders in Zeeland and Holland did not differ much, diverging expectations caused the price difference between Holland and Zeeland.

The following calculation, using 1681 data, will show the effect of a yearly recurring 2% capital tax can on the share price. 1681 is a good year to check for the price impact of the tax, because by that time, the Franco-Dutch war had ended and political unrest no longer caused sudden price changes. Furthermore, I have a relatively large number of price observations for both the Amsterdam and Middelburg chambers in these years (see Table 2.2), which makes a comparison of the prices more convincing.

In the decade preceding 1681, VOC shares had earned on average a yearly 15% dividend on nominal value. It could be assumed that shareholders expected to earn this rate in the future as well. Using a discount rate of 4.5%[30] leads to a share price of 348%.[31] A yearly tax of 2% on share capital meant that the yearly return on the share decreased by about 2%, hence this tax can be considered as a 2-percentage-point dividend cut. Shareholders would now adjust their expectations on dividends from 15% to 13% per year. Consequently, the share price would fall to just over 300%. Hence, in this example, a 2% capital tax would have resulted in a relative price fall of 13 1/3%. VOC shares in the Amsterdam chamber quoted on average 438.5% in January and February 1681. Extrapolation the data from Table 2.2 would yield a pre-tax Middelburg price of 345% (the Middelburg chamber shares quoted on average 21% lower[32]), which almost equals the price for a share that earns 15% dividend per year. On the Middelburg market, however, shareholders paid 290.5-292%.[33] This is slightly more than 2.5% less than predicted by my calculation, but the tax still provides a plausible explanation for the increased price difference after 1672.

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[30] A discount rate of 4.5% may seem low, but this was about the same rate merchants charged each other on loans where no collateral was pledged – an investment that could be considered equally risky as VOC shares. See for interest rates: SAA, Deutz, inv. nrs. 291-5.

[31] The price of a share today equals the sum of the present value of all future dividends. This is written as $P_0 = \sum_{t=1}^{\infty} \frac{DIV_t}{(1+r)^t}$, where P_0 is the share price today, r is the discount rate (the expected return on securities in the same risk class), DIV is the dividend, t the year and ∞ infinity. For an explanation on how this formula is derived, see e.g. Richard A. Brealey and Stewart C. Myers, *Principles of Corporate Finance* (6th ed., Boston 2000), 64-6.

[32] Cf. Table 2.2.

[33] SAA, PIG, inv. nr. 858, fo. 174.

The pamphlet's anonymous author also gave an explanation for the high share price in Amsterdam relative to the other four Holland chambers. According to him, the different levels of trading activity on the markets caused this. He wrote this pamphlet in 1688, shortly after the publication of a proposal to levy a tax on derivative transactions on the Amsterdam market that did not ultimately result in a share transfer. The author of this proposal, Nicolaas Muys van Holy, argued that the tax would limit speculative trades and hence protect less wily participants of the market.[34] *De actionisten voor en tegengesproken*, on the other hand, reasoned that a thriving secondary market for shares did not harm anybody and that a comparison between the six share markets in the Netherlands immediately revealed that more active trade led to higher prices. Hence, widows and orphans were not victims of the flourishing derivatives trade; on the contrary, they profited from the higher price resulting from the trading activity.[35]

The anonymous author did not elaborate on his explanations, but it is very well possible that these two factors accounted for the price differences within the province of Holland. Seventeenth-century investors, just like their present-day counterparts, preferred to invest in liquid assets, for this allowed them to quickly sell off the share if they needed cash. Additionally, they did not want their trades to have too much price impact; a sale on an illiquid market, for instance, could very well lead to a significant price decrease. Hence, shareholders were willing to pay a liquidity premium. I have no data on the liquidity of the markets for shares in the smaller chamber of the VOC, but Catharina Pieterson's efforts to sell her *f* 3,000 share in the Delft chamber reveal quite a bit of information about trading activity on the smallest markets. In March 1689, she asked Harmen van den Honert to sell her share. Van den Honert passed the order on to Johan de Hertoghe, a lawyer of the States of Holland. The reason why he did this becomes clear from the action taken by De Hertoghe: he ordered the Amsterdam broker Gerrit Loot, specialized in the share trade, to sell the share.[36] There were probably no buyers at all on the Delft market, so Van den Honert

[34] Muys van Holy, *Middelen en motiven*, 1. Muys van Holy proposed a *f* 6 tax on forwards. Option buyers should pay 10% of the premium, with a minimum of *f* 6. The tax would be refunded if the derivative transaction led to a share transfer. Ibidem, 3-5.
[35] *De actionisten voor en tegengesproken*, 7.
[36] Manuel Mendes Flores *vs.* Johan de Hertoghe, NA, Court of Holland, inv. nr. 857, nr. 1695-58. This case came up before the Court of Holland in first instance. Broker Loot managed to sell the share in Amsterdam to Manuel Mendes Flores, but the share was never transferred to him, because De Hertoghe had inadvertently also sold the share in The Hague – probably to an acquaintance of his, for there was no sizable share market in The Hague.

needed someone with good connections in Amsterdam to sell the share there. Shares in the smaller chambers thus gained liquidity by using the size of the Amsterdam market. It could be possible – but this single example cannot prove it convincingly – that the secondary markets for shares in the smallest chambers of the VOC gradually dissolved in the Amsterdam market, rendering the smaller markets redundant.

Apart from a liquidity premium, short-selling restrictions would also have had an effect on the price. On markets with short-sale constraints, pessimistic investors can sell the shares they currently own, but they cannot get a short position*. Optimistic investors, on the other hand, have no limitations of the amount of shares they can buy. Hence, their beliefs have a disproportionate influence on the share price.[37] Short-sale constraints were in force on the market for VOC shares, but they were generally ignored. However, these constraints could still have had an effect on the share price, for there was a bias in the courts' behavior in favor of buyers. As I will show in chapter 3, buyers of forward short sales could always ask the court to declare their transaction null and void. The seller would then not only forgo the profit from the transaction, but he would also incur a fine. Buyers of forward short sales seldom went to court, but sellers nonetheless knew that they ran a risk that the contract would be declared null and void. Put another way, the *a priori* risk of a forward seller was higher than that of the buyer. This could have resulted in more buyers than sellers among the traders willing to participate in the forward market, leading to a higher price, and it could also have induced forward sellers to demand slightly higher prices as a compensation for the extra risk they ran. Although short-sale constraints were in force in all the cities with VOC chambers, I contend that the restrictions had a greater influence on the price in Amsterdam than in any of the other cities, because of the simple fact that the Amsterdam forward market was much larger.

The increasing price difference after 1650 was thus a direct result of the fact that the development of the Amsterdam market outpaced that of the peripheral markets. Participants of the Amsterdam market were willing to pay a liquidity premium and the increase in speculative trading activity led to higher prices for shares in the Amsterdam chamber.

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[37] Several economists have tried to model the effects of short-sale constraints on share prices. E.g. Hong Scheinkman and Xiong, 'Asset float'.

Conclusions

The data presented in this chapter corroborate the findings of chapter 1. During the 1630s and 1640s, the secondary market for VOC shares transformed into a modern financial market. Market activity, both on the spot and forward markets, increased sharply during these decades. The growing price difference between shares in the Amsterdam chamber and shares in the peripheral chambers from 1650 onwards shows that the development of the smaller markets could not keep pace with Amsterdam. The data also provide evidence for my hypothesis that the trading clubs began to play a significant part only from the 1660s onwards. The explanation for the fact that the emergence of the trading clubs lagged behind the other developments on the market must be that by 1660, the market had grown too large for its original structure; trading clubs were needed to handle the complexity of the market.

Date (month-year)	*Middelburg*	*Enkhuizen*	*Hoorn*	*Amsterdam*	*Relative difference*
IX-1611	220	220		225	2.2%
XI-1611		216		218	0.9%
VII-1616		254.5		262	2.9%
III-1617		260		265	1.9%
VI-1617		264		267	1.1%
XII-1618		310.5		314.5	1.3%
IX-1649		520		539	3.5%
XII-1650		490		527.5	7.1%
XI-1652		363-6		438	16.4%
VIII-1659		280-90		340	17.6%
IV-1660		350-2		412	15.0%
VI-1660	350			443	21.0%
VII-1667		350		422.5	17.2%
VIII-1671	460			535	14%
X-1671	470			517	9.1%
II-1672	330-40			406-13	17.7-18.7%
IV-1672	255			311	18%
XI-1672	280-290			378	23.3-25.9%
XI-1680	300			447.5	33.0%
I-1681	290.5-292			438.5	33.4-33.8%
II-1681	292			438.5	33.4%
XI-1681			357	439	18.7%
VI-1685		382.5		464.5	17.7%

Table 2.2 Share price data of the Middelburg, Enkhuizen, and Hoorn chambers of the VOC

No data available for the Rotterdam and Delft chambers. Sources: SAA, Velters, inv. nr. 1; SAA, Deutz, inv. nrs. 276, 294-5; SAA, PIG, inv. nr. 858; SAA, Merchants' accounts, inv. nr. 39; SAA, Notaries, inv. nr. 1133, fo. 18, inv. nr. 2207, fo. 255, 739; BT, inv. nr. 112 C2, fo. 7; inv. nr. 113, fo. 1, 38, 40, 42, 49.

Please note that for the period 1611-1617, the prices in this table do not correspond to those depicted in Figure 2.6. The account books of Anthoni Thijs yielded the observations (for both the Amsterdam and Enkhuizen chambers) for these years. Thijs quoted the prices *cum*-dividend (57.5%). I do not know the *ex*-dividend values – part of this dividend had been distributed in kind and the shareholders did not value it at exactly 57.5%. Therefore, I have chosen to omit them in the dataset containing the prices of the Amsterdam chamber for the entire seventeenth century. However, these price observations are useable for a comparison between the Amsterdam and Enkhuizen chamber prices, for Thijs had collected the same amount of dividend in both chambers.

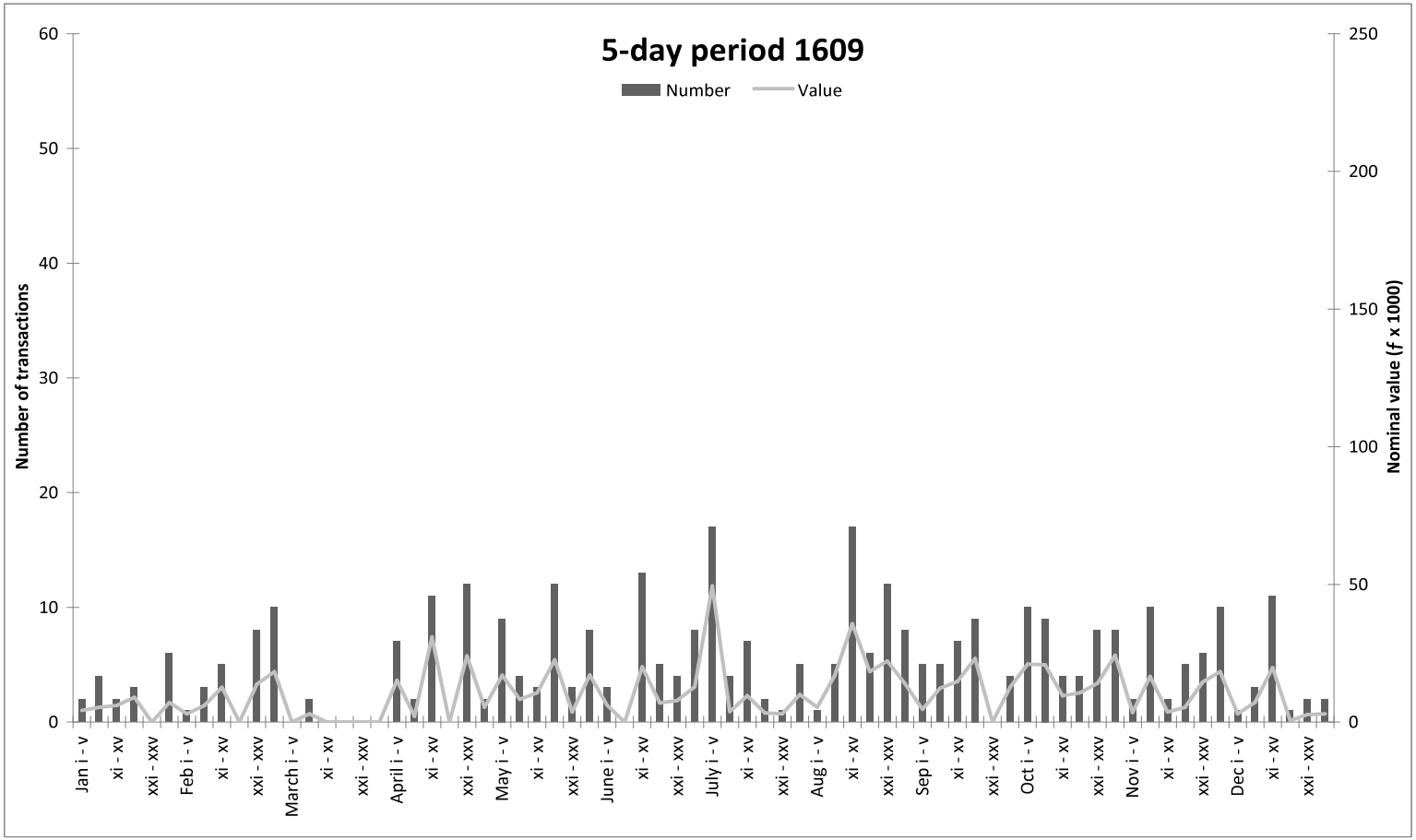

Figure 2.1 5-day period share transfers, VOC Amsterdam chamber, 1609
Total number of share transfers: 368. Total nominal value of share transfers: *f*785,690. Source: NA, VOC, inv. nr. 7066.

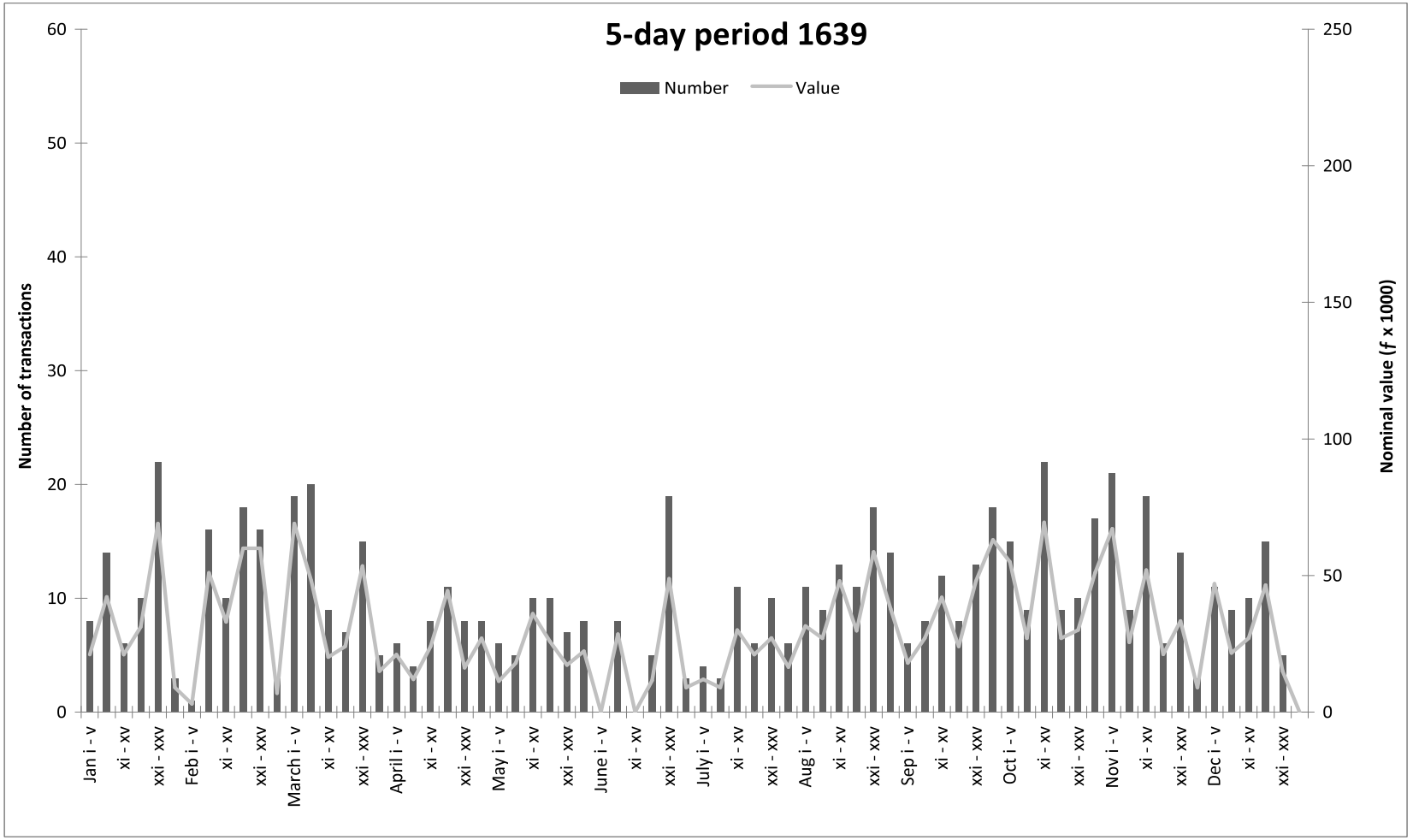

Figure 2.2 5-day period share transfers, VOC Amsterdam chamber, 1639
Total number of share transfers: 713. Total nominal value of share transfers: *ƒ*2,205,330. Source: NA, VOC, inv. nr. 7068.

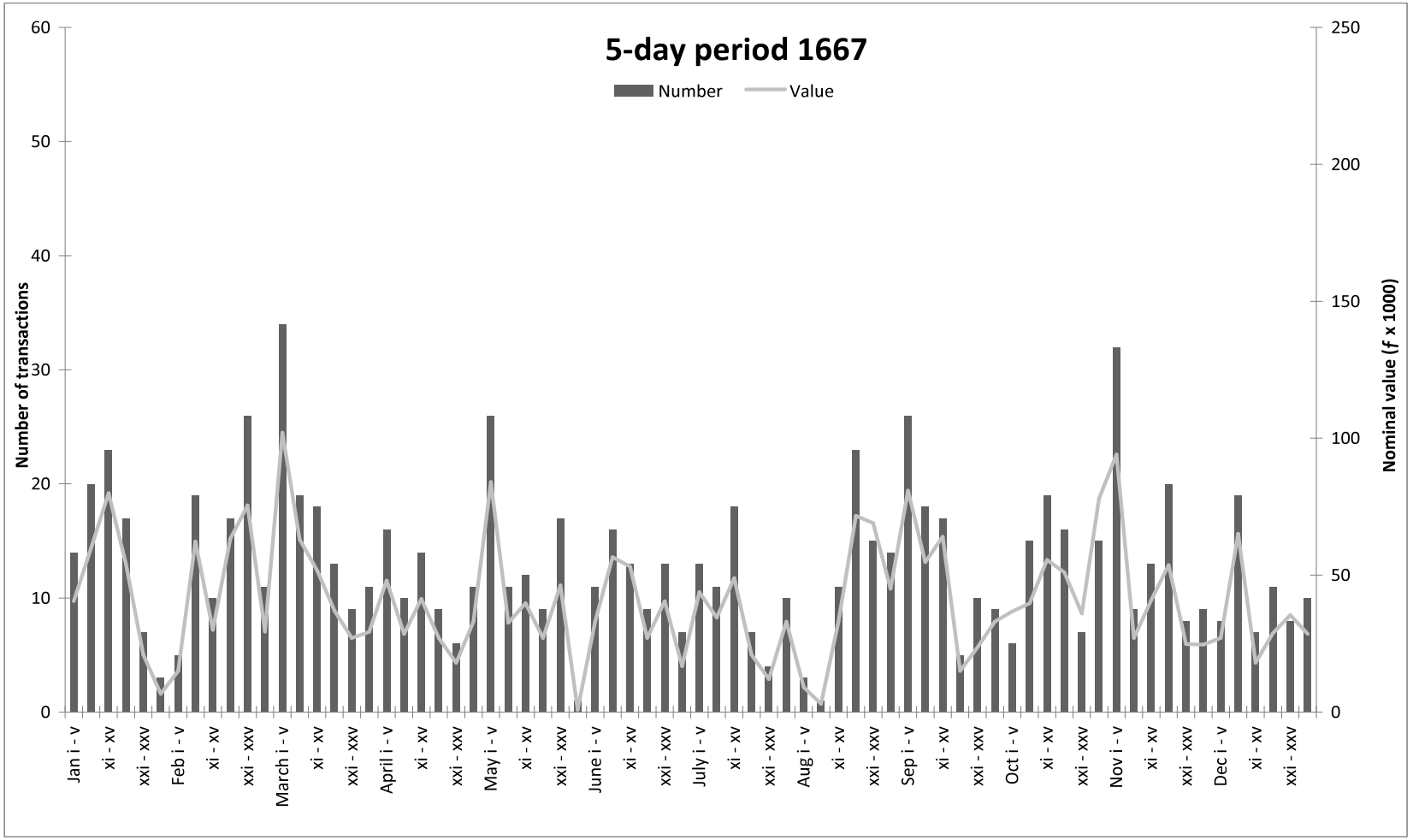

Figure 2.3 5-day period share transfers, VOC Amsterdam chamber, 1667
Total number of share transfers: 934. Total nominal value of share transfers: *ƒ*2,960,910. Source: NA, VOC, inv. nr. 7070.

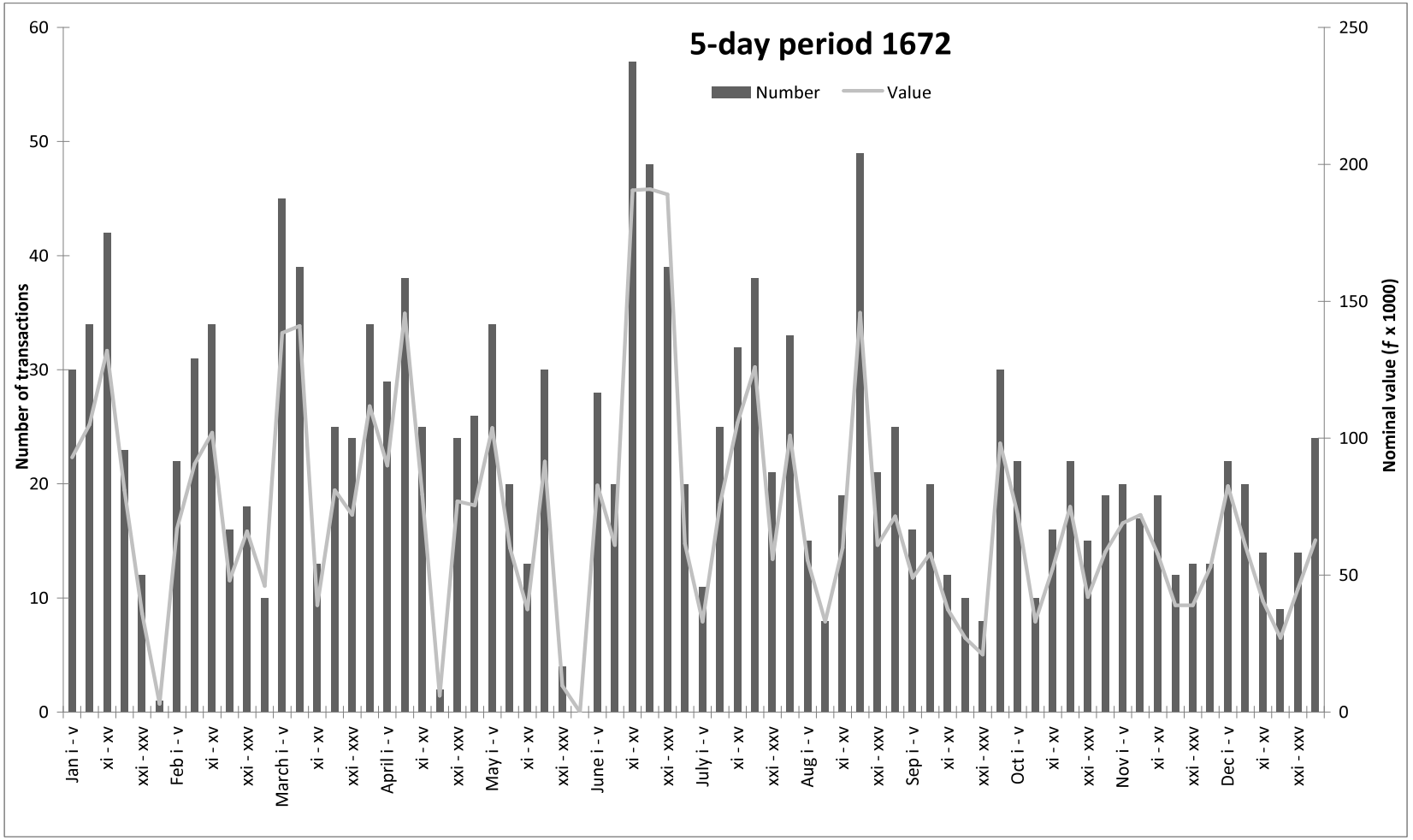

Figure 2.4 5-day period share transfers, VOC Amsterdam chamber, 1672
Total number of share transfers: 1604. Total nominal value of share transfers: *ƒ*5,200,497. Source: NA, VOC, inv. nr. 7070-1.

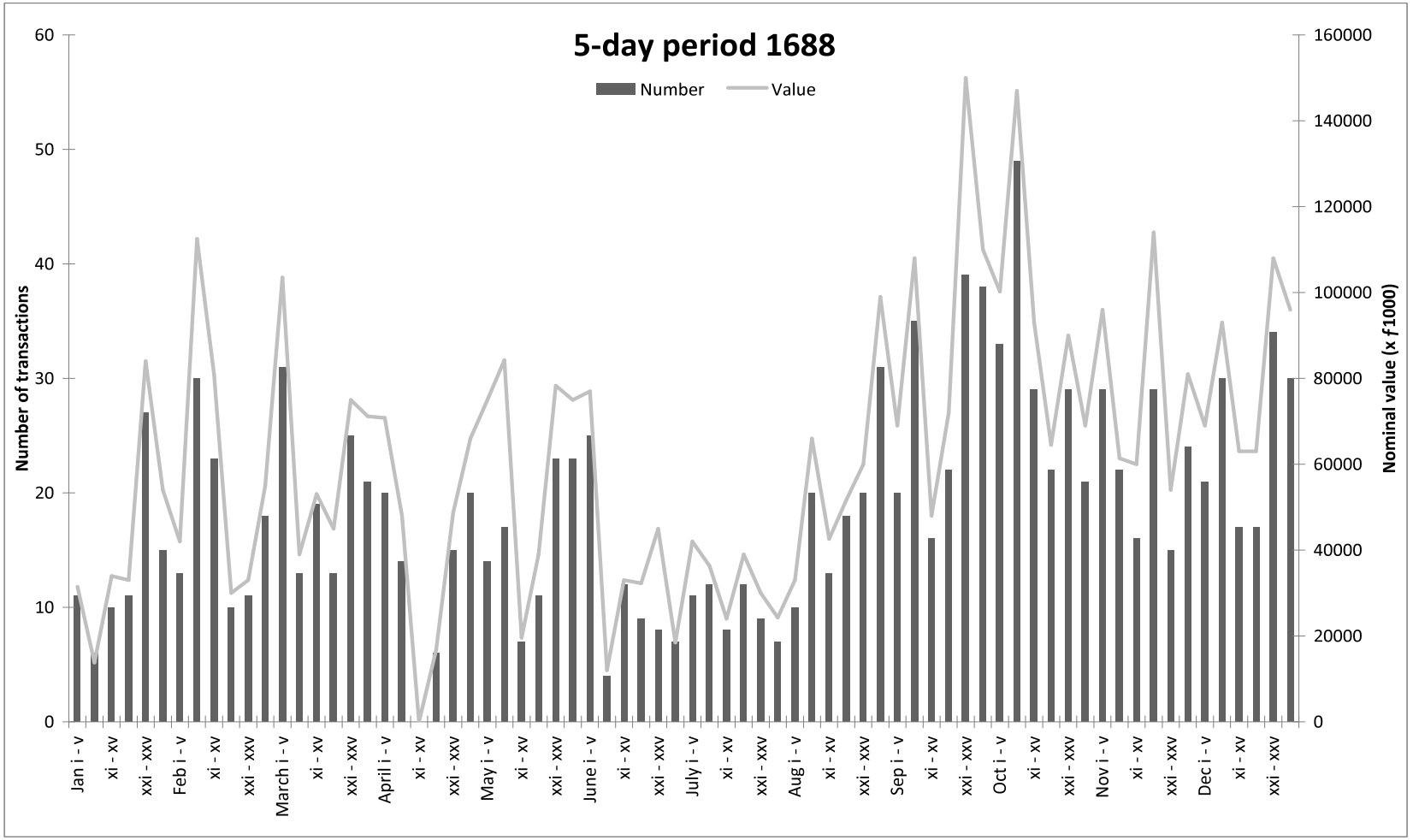

Figure 2.5 5-day period share transfers, VOC Amsterdam chamber, 1688
Total number of share transfers: 1350. Total nominal value of share transfers: *f*4,456,446. Source: NA, VOC, inv. nr. 7072.

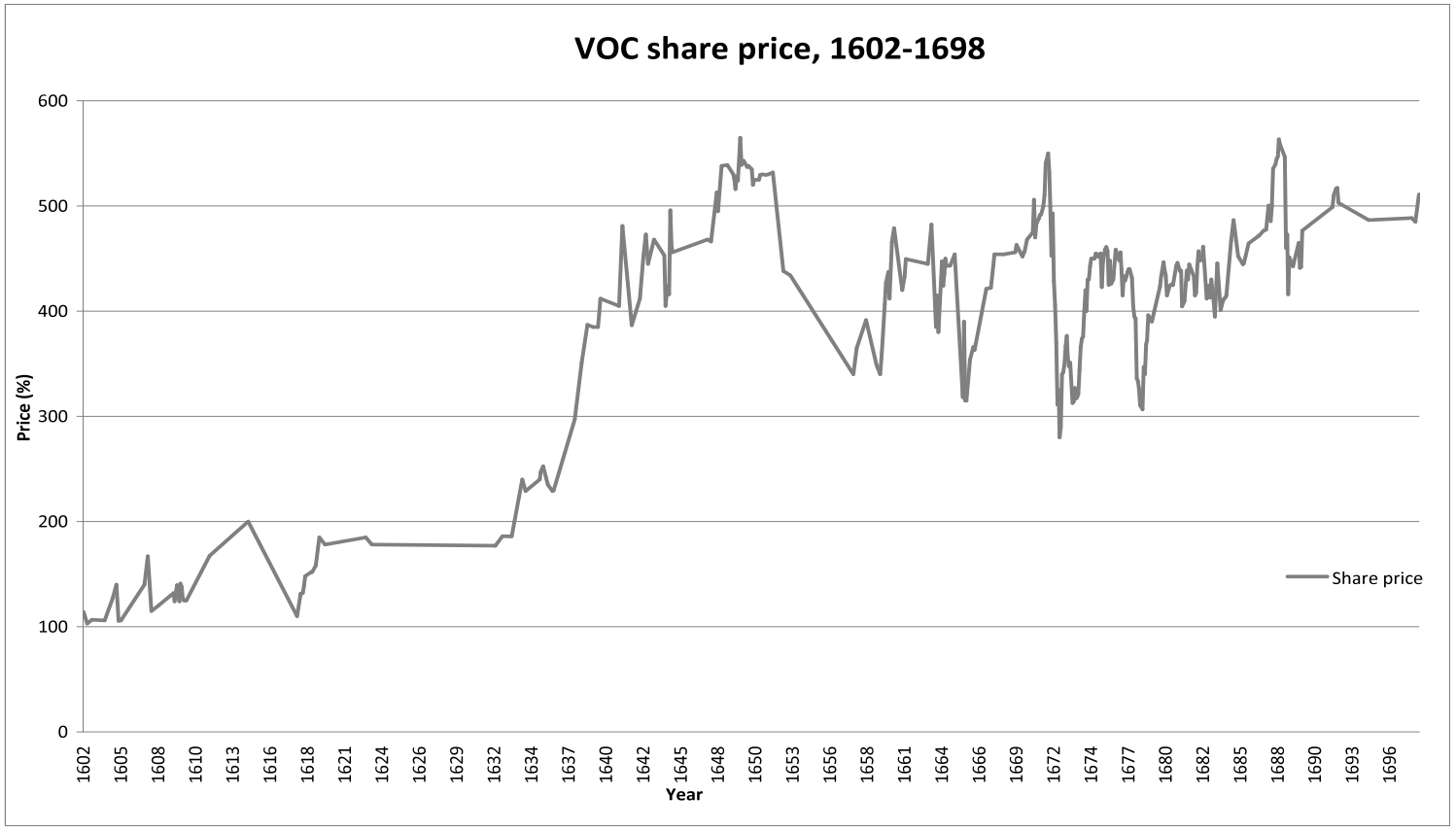

Figure 2.6 Monthly VOC share price, Amsterdam chamber, September 1602 – February 1698. Missing values derived from linear interpolation.
Number of observations: 851. Sources: SAA, Velters, inv. nrs. 1-4; SAA, Deutz, inv. nrs. 275-6, 291-5, 301; SAA, Merchants' accounts, inv. nrs. 39-40; SAA, PIG, inv. nr. 858; SAA, Notaries, Card index; SAA, Notaries, inv. nrs. 2238-40, 4131-6; BT, inv. nrs. 112-3, 119K, 119N, 215; PA, Microfilms SP 119/36, SP 119/38.

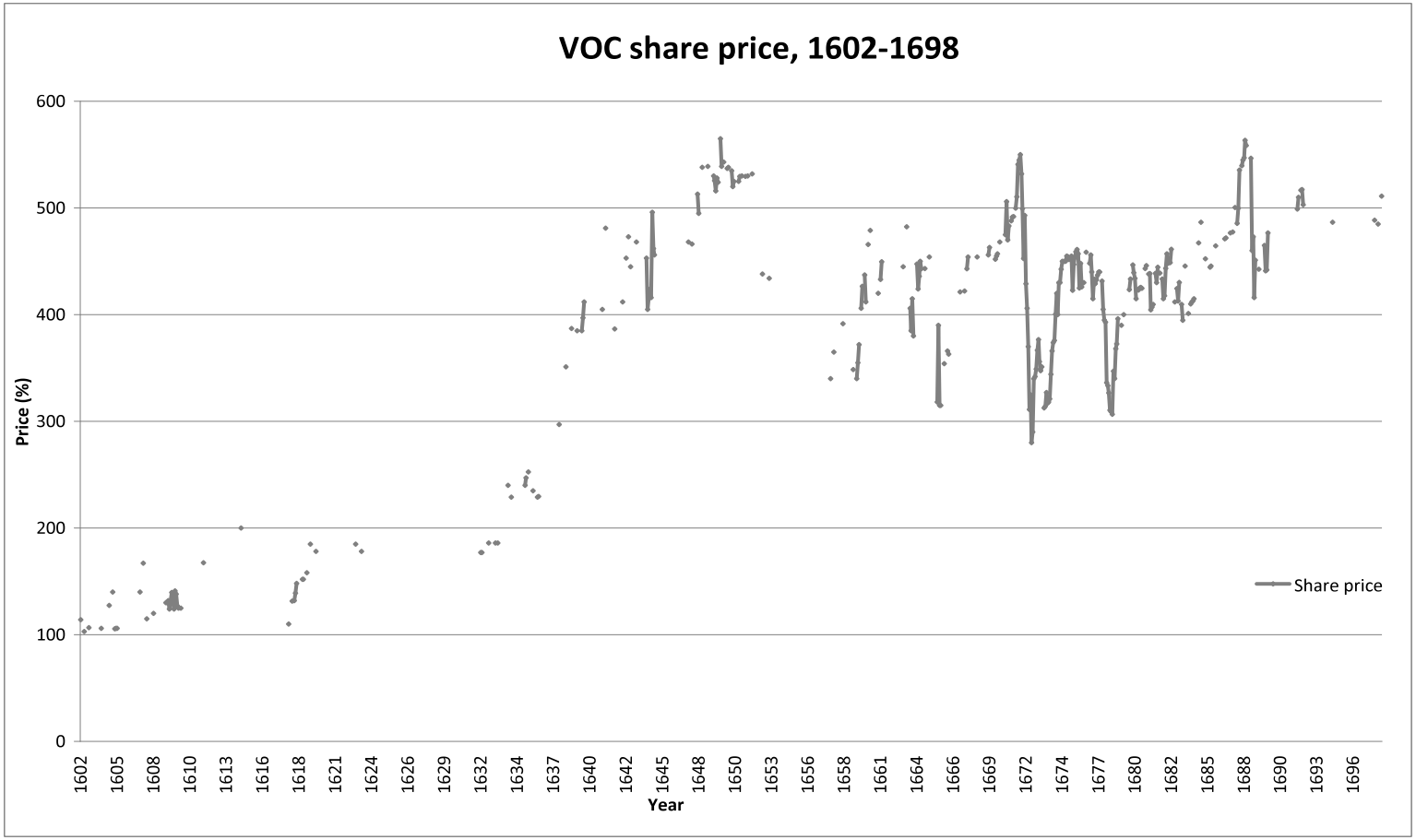

Figure 2.7 Monthly VOC share price, Amsterdam chamber, September 1602 – February 1698

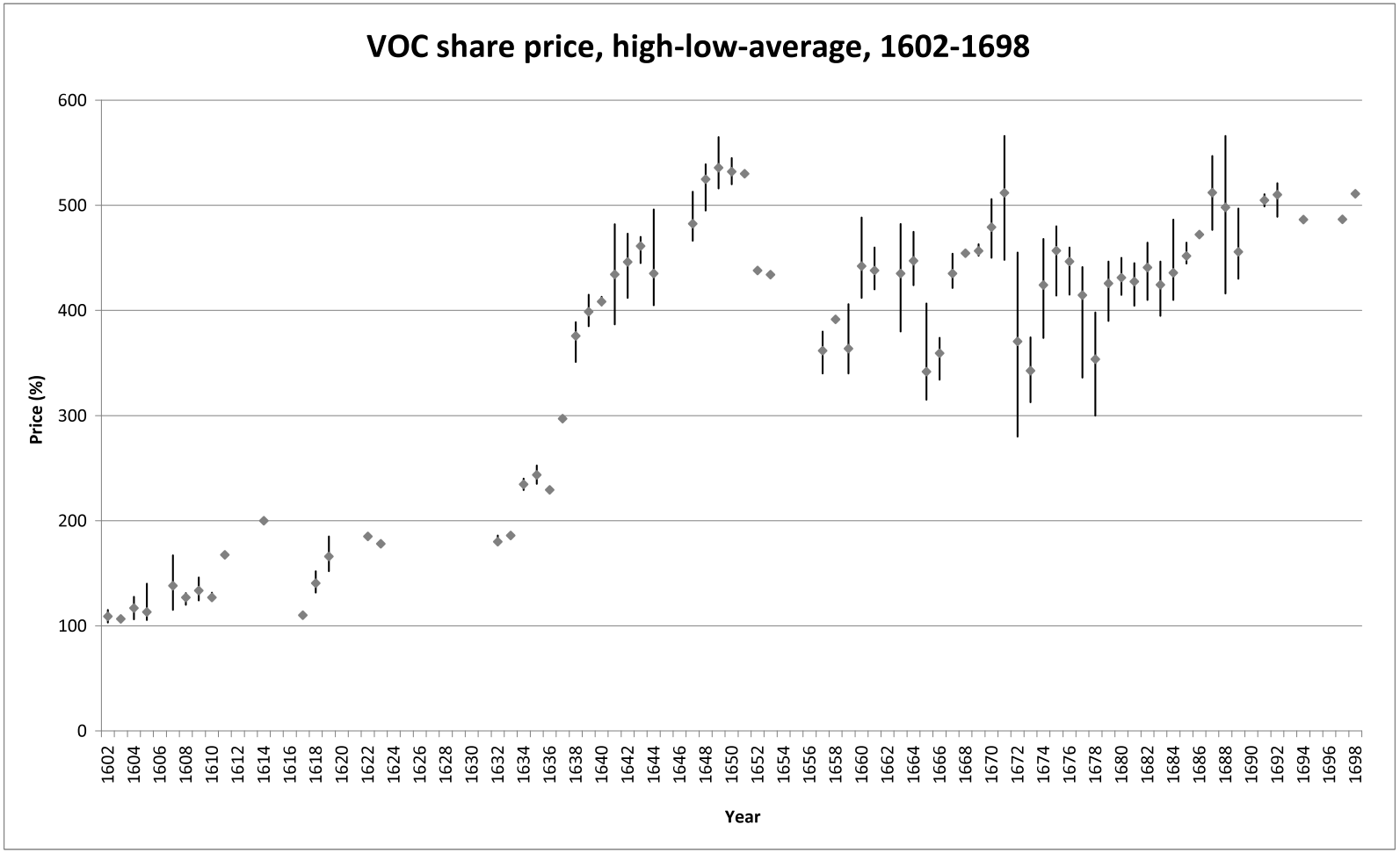

Figure 2.8 Yearly high-low-average VOC share price, Amsterdam chamber, 1602-1698
The markers show the average share price in a given year; the vertical lines connect the highest and lowest shares prices in a given year.

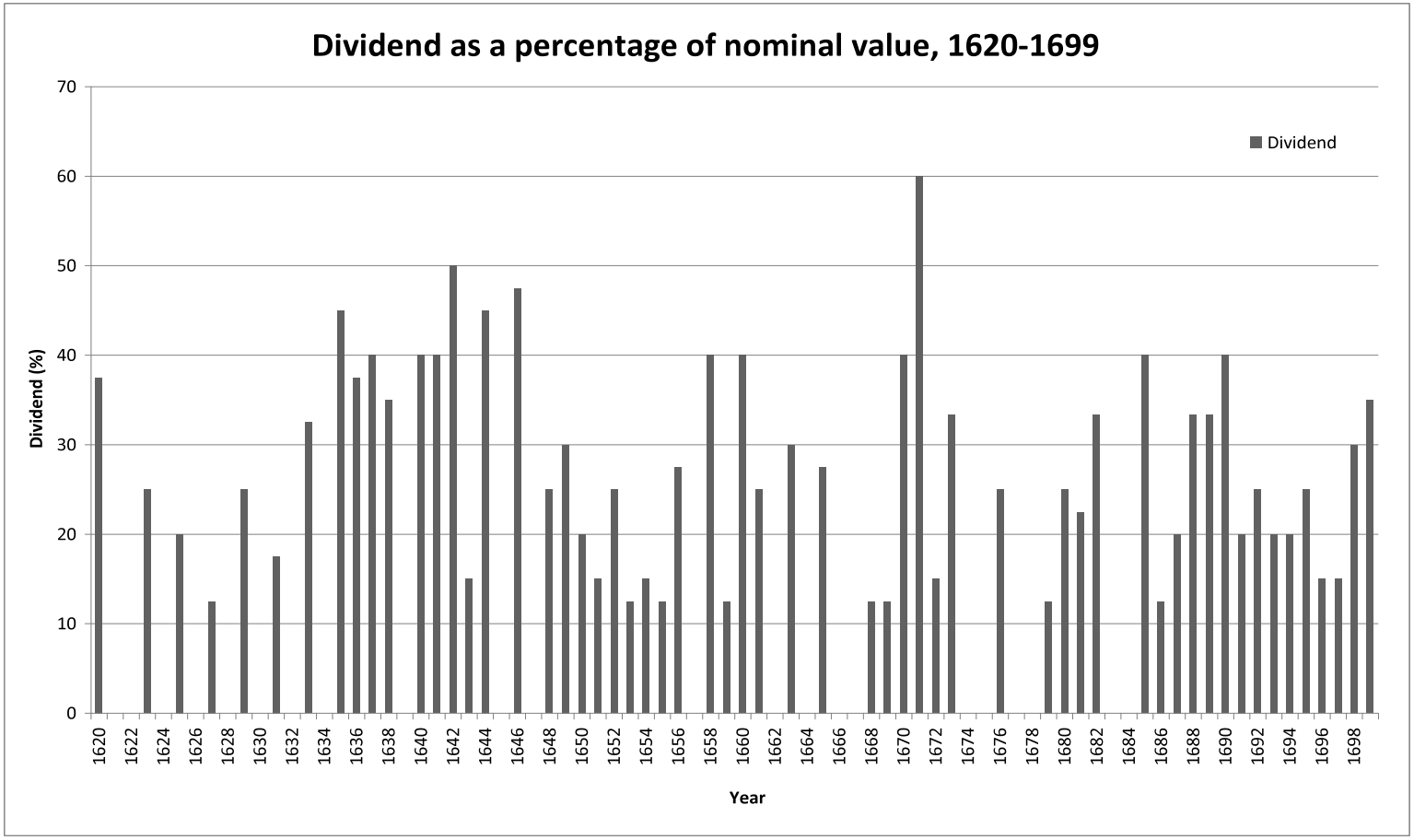

Figure 2.9 Yearly dividends as a percentage of the nominal value of VOC shares, 1620-1699
Sources: Klerk de Reus, *Geschichtlicher Überblick,* Appendix VI. Van Dam, *Beschryvinge* 1A, 433-436. De Korte, *De jaarlijke financiële*.

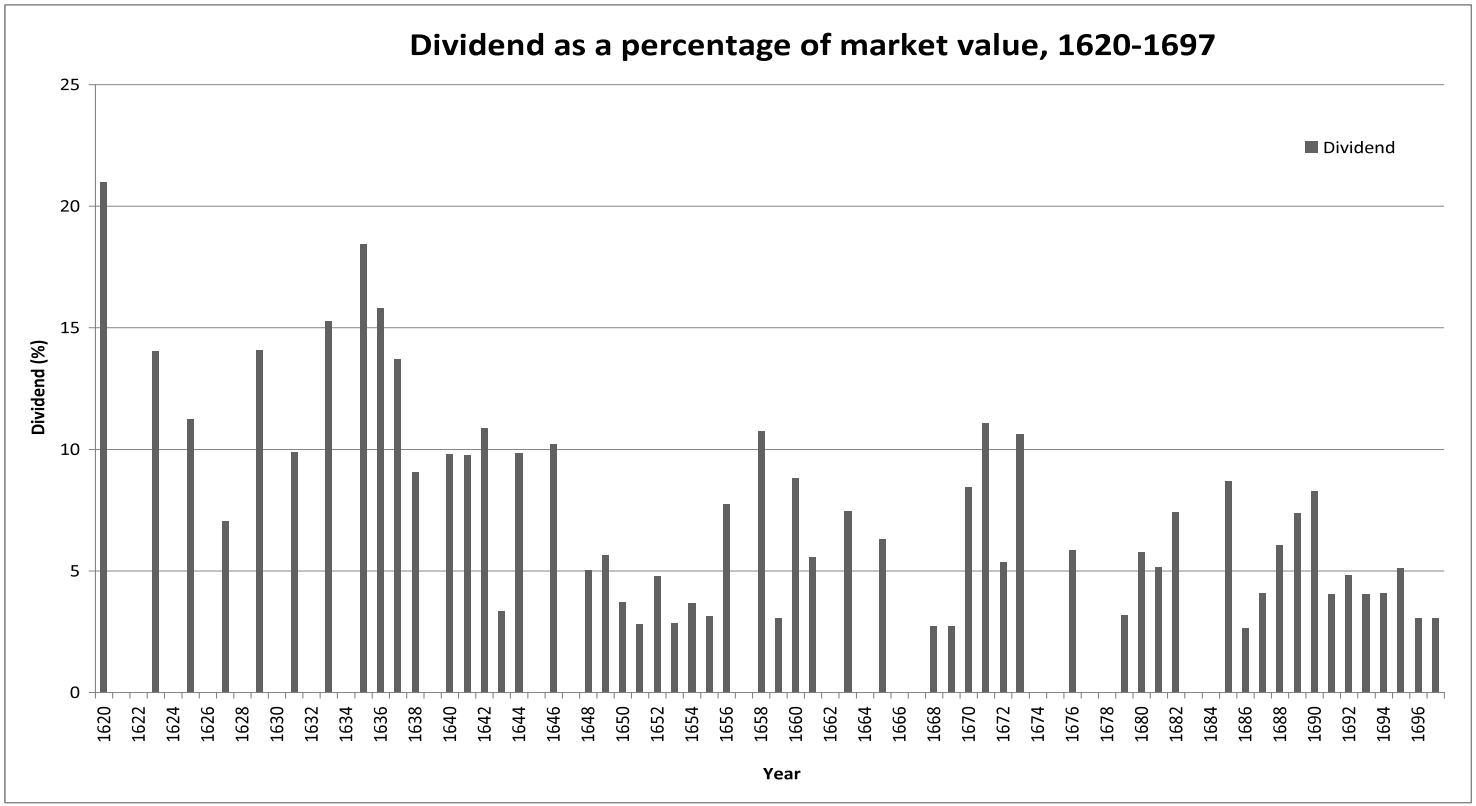

Figure 2.10 Dividend as a percentage of market value, 1620-1697
Dividend as a percentage of market value is calculated by dividing the dividend per share by the market price per share. Please note that for the periods 1624-31, 1645-6 and 1654-7, the market prices are based on interpolated data.

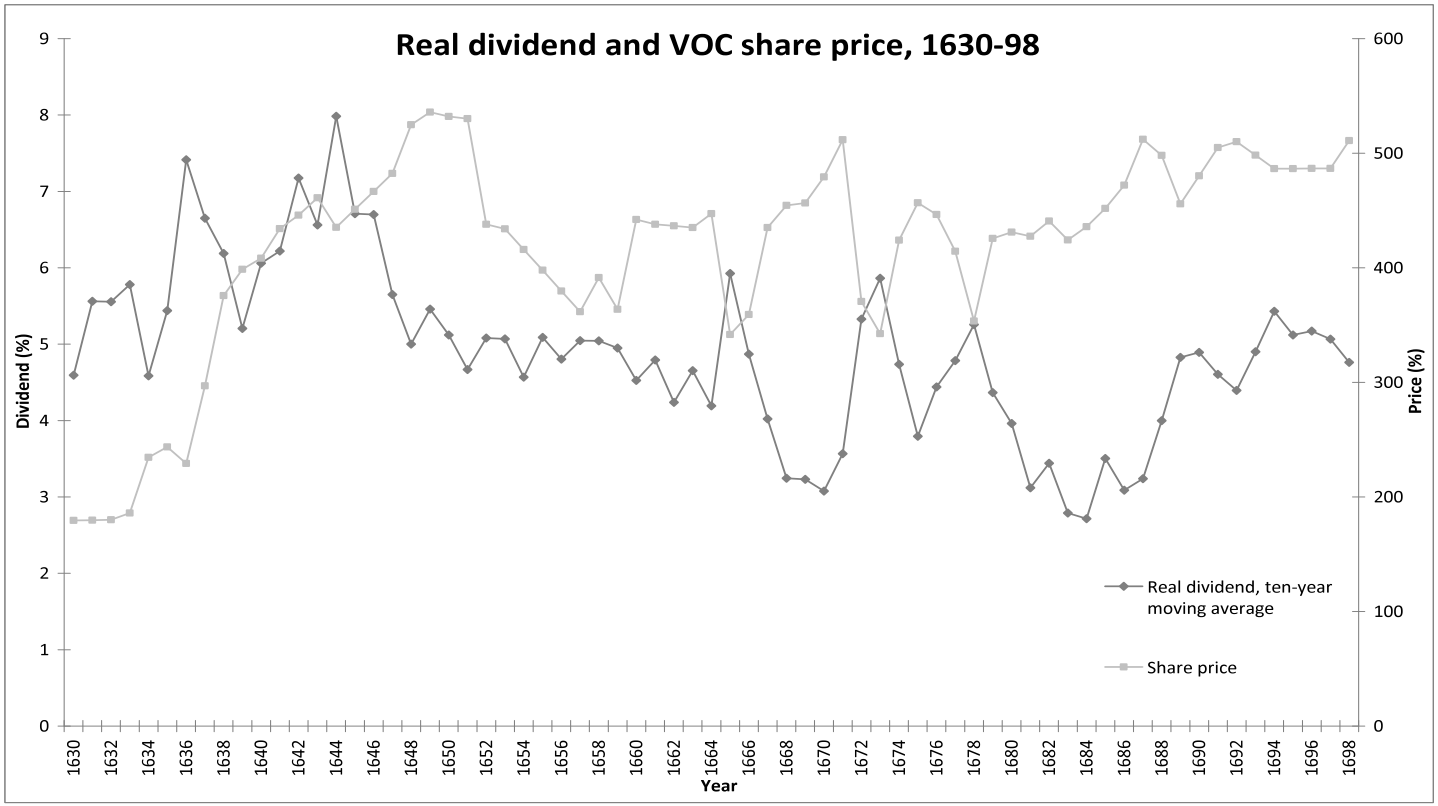

Figure 2.11 Real dividend and VOC share price, 1630-98
The dark grey line depicts a ten-year backward moving average of real dividend on Amsterdam chamber VOC shares (left-hand scale). The value for 1630, for example, is calculated by dividing the average yearly nominal dividend over the period 1621-30 by the average share price of 1630. The light grey line depicts the average yearly share price of Amsterdam chamber VOC shares (right-hand scale). Missing values in the share price series have been derived from linear interpolation.

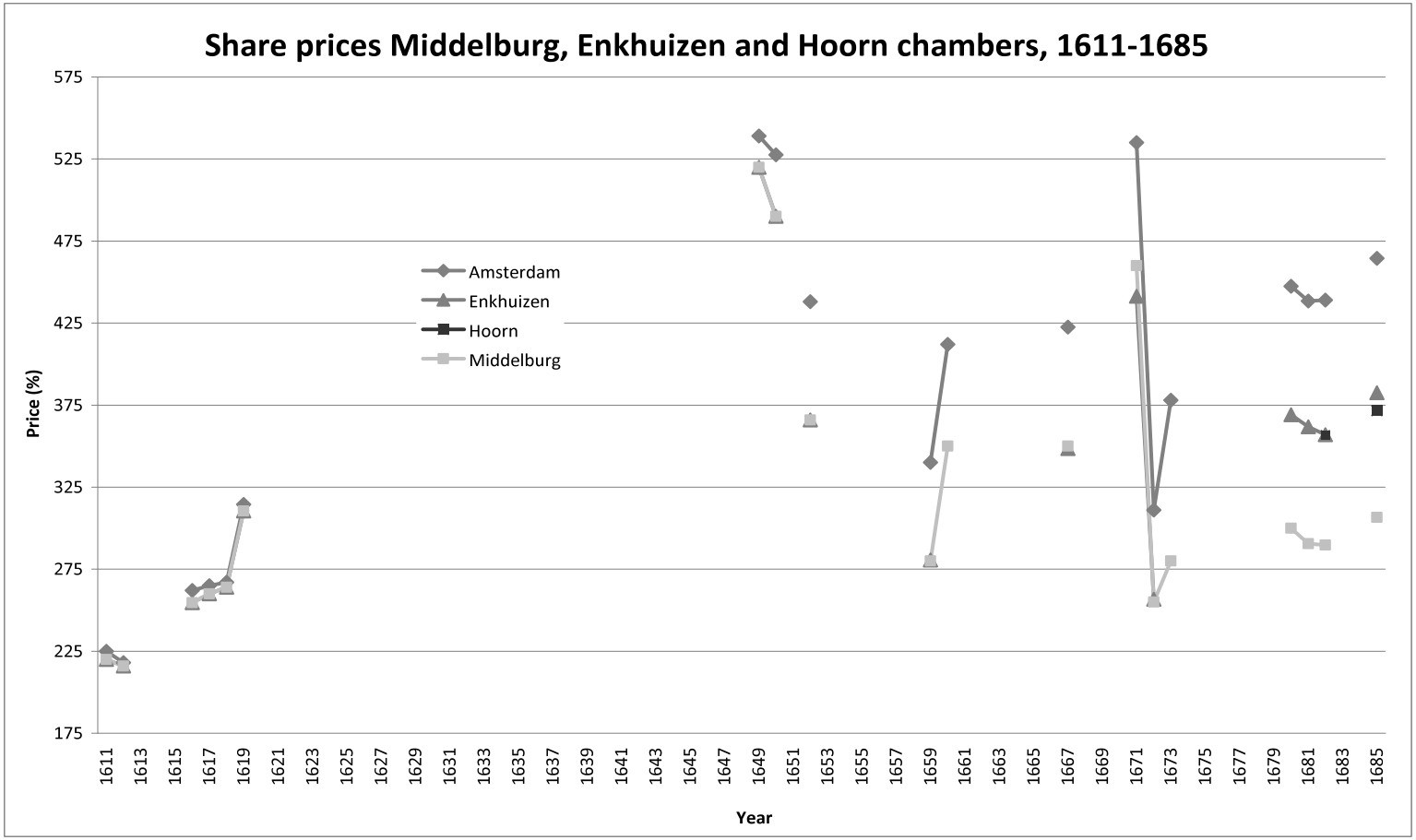

Figure 2.12 Share price data of the Amsterdam, Middelburg, Enkhuizen and Hoorn chambers of the VOC, 1611-1685
Source: Table 2.2.

Part II

The organization of the market

3 CONTRACT ENFORCEMENT

Introduction

An active market will develop only if traders can be sure that their trades will be executed by the market.[1] A trader will be hesitant to enter into a transaction if his counterparty can renege on his obligations without suffering adverse effects. So, for the development of the secondary market for VOC shares, some kind of mechanism for contract enforcement had to be in effect. Fortunately, the Low Countries already had a long history of commercial contracting when share trading started in 1602, so merchants and legal institutions were experienced in enforcing commercial transactions.[2] Moreover, the legal system acknowledged its important role in the development of trade. In Antwerp, the commercial metropolis of the sixteenth-century, the legal institutions interacted with the merchant community and promoted the merchants' interests.[3]

Share trading did thus not emerge in a legal void. On the contrary, the legal principles that applied to the transactions on the share market were already in existence and hence the share transactions fitted into existing categories of commercial law. The laws that applied to the transfer of title of a share, for example, were the same as those that applied to the transfer of ownership of real estate – both were considered immovable goods under Dutch law.[4] However, not everything was clear from the start, as the large number of conflicts between share traders that ended up in lengthy court cases in the period before 1630 shows. For period 1610-30, I have found thirty lawsuits dealing with share-trade-related court cases in the archives of the Court of Holland in The Hague.[5] This provincial court pronounced judgment in about 150

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[1] O'Hara, 'Optimal microstructures', 831-2.

[2] See, e.g., Herman van der Wee, *The growth of the Antwerp market and the European economy (fourteenth-sixteenth centuries)* II (The Hague 1963). Oscar Gelderblom, *Confronting violence and opportunism. The organization of long-distance trade in Bruges, Antwerp and Amsterdam, 1250-1650* (manuscript 2009).

[3] Dave de Ruysscher, *Handel en recht in de Antwerpse rechtbank (1585-1713)*, unpublished PhD thesis (K.U. Leuven 2009).

[4] See footnote 28 on page 98.

[5] Heleen Kole generously shared the notes she made for Oscar Gelderblom in the Court of Holland archives with me. She used a sample of court cases over the period 1585-1630 in which litigants appeared whose last names started with B, M or P. In addition to her sample, I used the name index (NA, Court of Holland, inv. nr. 1077) to look up all cases whose litigants are known to also have been share traders. There are no share-trade-related court cases available prior to 1610; which can be explained by the facts that it took several years before the court pronounced judgment, that there were relatively few trades in the first years after 1602 and that share traders started using more advanced financial techniques (forward trading, short selling) only from 1607 onwards.

cases per year, which means that one percent of the cases concerned share transactions.

After 1640, however, the ratio decreased to about one in every five-hundred lawsuits.[6] I will show in the first section of this chapter that in the earliest decades of the development of the secondary market for VOC shares, traders started litigation to test the bounds of the existing legal concepts. These litigants were convinced that there existed some space to maneuver within the rule of law. They were willing to enter into costly litigation – lawsuits before the appeal courts of Holland became especially costly if litigants kept adducing new evidence and appealing judgments[7] – that took up a great amount of effort; lawsuits that were ultimately brought before the Court of Holland could take anywhere between three-and-a-half and twelve years.[8]

From around 1640 onwards, however, traders no longer brought their share-trade-related conflicts before the higher courts. By then, the Court of Holland had pronounced judgment on all legal concepts that applied to the share trade. Henceforth, share traders could predict how the courts would decide in share-trade-related conflicts. Traders were no doubt abreast of the jurisprudence concerning the share trade and they regarded the Court of Holland as the authoritative institution regarding new interpretations of the law; they explicitly referred to earlier judgments of the

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[6] There are twenty so-called extended sentences of lawsuits dealing with share-trade-related conflicts available for the period 1640-1700. I have used the name index (NA, Court of Holland, inv. nr. 1078) to look up all cases for which I knew that the litigants (or their close relatives) traded shares. Additionally, I have checked all lawsuits listing names of Portuguese Jews.

[7] In the case between the directors of the VOC and Abraham de Ligne c.s., for example, the costs for the report made by one of the councilors of the High Council already amounted to *f* 126; each party had to pay half. This sum does not include the costs of lower courts, the process server, the solicitors' fee and taxes. NA, High Council, inv. nr. 642, 7 December 1621. These reports usually constituted half of the court's total costs; a bill in the Cardoso family's estate shows that the report constituted about 60 percent of the court's costs: *f* 36 on a total of *f* 59.20. Rachel Cardoso had to pay half of this amount (*f* 28.40), to which a total of *f* 12.90 taxes were added: bill Parnassim of the Jewish community of Amsterdam *vs.* Rachel Cardoso, 2 November 1712, estate David Abraham Cardoso, SAA, PIG, inv. nr. 654. The reports of the Court of Holland's *commissarissen* (e.g. NA, Court of Holland, inv. nr. 1355, for the year 1672) sometimes also include the bill of the court's process server. He charged *f* 3.75 for every summons. The clerk of the court's office charged *f* 6.20 per document. The bill could become steep if a lawsuit involved several litigants who all had to be served summons individually.

[8] The main factor of influence on the variation in duration was the amount of time litigants let go by before they submitted a request for appeal. The Court of Holland of course employed a maximum term to request an appeal, but the court could make exceptions for special cases. Moreover, a lower court's judgment could be suspended for the duration of the appeal (*mandement in cas van appel*) only if the appeal had been requested within a short period: M.-Ch. le Bailly, *Hof van Holland, Zeeland en West-Friesland: de hoofdlijnen van het procederen in civiele zaken voor het Hof van Holland, Zeeland en West-Friesland zowel in eerste instantie als in hoger beroep* (Hilversum 2008) 26. Le Bailly does not mention the maximum periods before lodging an appeal.

Court of Holland if a new conflict arose.[9] The courts' jurisprudence can thus be regarded as securities law.

The legal certainty that emanated from the judgments of the Court of Holland reduced investors' hesitancy – smaller merchants and, most prominently, Portuguese Jews – to participate in the share trade. As a result of the establishment of a clear legal framework, the market grew considerably in size.[10] Focusing on transaction costs can help to understand how legal certainty can persuade people to invest: the formation of a clear legal framework reduced the costs of protecting contractors' rights and also of costly enforcement of agreements by a third party, i.e. the court.[11]

However, the legal certainty applied only to part of the market: shareholders were allowed to trade only shares they legally owned on the spot and forward markets. The possibilities for growth were thus limited by the size of the VOC capital stock – the amount of legal shares available on the market. The sources clearly show that a number of traders performed far more transactions than their shareholdings would legally allow. Jacob Athias and Manuel Levy Duarte, for example, had monthly share turnovers on the forward market during the period 1683-4 of between *f*200,000 and *f*2,000,000.[12] At the same time, however, there were only very few mutations registered on their account in the capital book of the Amsterdam chamber and their nominal position never exceeded *f*3,000. In June 1684, they liquidated their position.[13] Their forward trades generally netted out, so they did not take large short positions in the VOC, but their official ownership of shares was nevertheless insufficient to legally justify their forward sales. These were, in other words, short sales and would not be enforced by the courts.[14] I will argue in the second section that the participants of the forward market were aware of this. They therefore established a private enforcement mechanism that replaced the rule of law. This mechanism, which was in force in the

[9] Diego d'Aguirre, Duarte Rodrigues Mendes, Antonio do Porto and Isaack Gomes Silvera, for example, referred to a judgment of the Court of Holland in a claim they submitted to the Court of Aldermen (18 September 1672): SAA, Notaries, inv. nr. 4075, pp. 186-9.
[10] Cf. Chapter 2; particularly Figure 2.1 (p. 76) and Figure 2.2 (p. 77).
[11] North, *Institutions*, 27.
[12] SAA, PIG, inv. nrs. 687-8. The values given are market values.
[13] Interestingly, their nominal position in the VOC fluctuated between *f*9,000 and *f*27,000 in the years 1680 and 1681: NA, VOC, inv. nr. 7072, fo. 235, 383. Unfortunately, their forward trading activity during these years is unknown.
[14] For the ban on short selling, see chapter 1, section 1609-10 – Isaac le Maire on page 24 ff. The ban of 1610 was reissued in 1623, 1624, 1630, 1636 and 1677. Placard 3 June 1623: Cau, *Groot placaet-boeck* I, 555-9. Placard 20 May 1624: Ibidem, 665-7. Placard 1 October 1630: Ibidem, 667. Placard 27 May 1636: Ibidem, 667. Placard 16 September 1677: Cau, *Groot placaet-boeck* III, 1307.

trading clubs[15], was based on the traders' reputations and the condition that each participant benefited from subordinating to it.

The line of argument is thus as follows: court judgments in the first decades of the seventeenth century created a level of legal certainty that induced the entry to the market of new groups of traders. The subsequent growth could no longer fit within the legally approved boundaries of the market and created the need for a sub-market where a private enforcement mechanism was in force and where access restrictions made sure that only trustworthy traders could participate.

The two parts of this chapter build on two different fields of historiography. The first deals with the development of commercial law in Northwestern Europe and third-party enforcement of trade-related conflicts. In the province of Holland, the law consisted of a combination of Roman law and customary law, compiled by the famous jurist Hugo de Groot (Grotius).[16] Gelderblom has argued that this was not a static law. The *Hollandsche Consultatiën*, a seventeenth-century collection of legal advices compiled by jurists working for the provincial Court of Holland show that this court based its judgments 'on a combination of Roman law, local and foreign customs, Habsburg ordinances, and Italian and Spanish mercantile law'.[17] It is therefore interesting to study the sentences of the Court of Holland in detail – in pronouncing judgments on share-trade-related court cases this court's judges drafted the world's first securities law. Banner has traced the origins of Anglo-American securities regulation from the eighteenth century onwards. He analyzed attitudes towards the trade in securities and studied how these influenced the regulation of the trade. Banner found that although the societies and the authorities in England and the United States were often ill-disposed towards the trade in financial securities, leading to bans on the trade of specific derivatives, the courts kept enforcing the contracts. They based their judgments on general legal concepts rather than on the attitudes of the general public, thus giving legal protection to the trade.[18]

The second focuses on private enforcement mechanisms. The most influential works on this topic have focused on international trade. The difficulty of monitoring business partners abroad required a high level of commitment by all partners in-

[15] See, for a general introduction on trading clubs, chapter 1, section 1660s – Trading clubs on page 45 ff.
[16] R.C. van Caenegem, *Geschiedkundige inleiding tot het privaatrecht* (Ghent 1981) 51.
[17] Gelderblom, *Confronting violence and opportunism*, 366.
[18] Banner, *Anglo-American securities regulation*.

volved. Greif has shown for the eleventh-century trade between North Africa and Italy that traders organized themselves in coalitions. This coalition-forming created a situation in which even traders who did not know each other personally were willing to trade with one another. The system worked so well because all participants benefited from it.[19] The share market cannot be seen as an example of international trade, though. While foreign traders occasionally participated, the majority of the traders came from Amsterdam. But the trading community did not consist of a homogeneous group of traders either – particularly after the Sephardic community of Amsterdam started participating in the market from the 1640s onwards. Hence the forward market was characterized by a large heterogeneous group of traders who put very large amounts of money at stake. How did they make sure that all members of the trading community lived up to their agreements?

Court cases form the most important source for this chapter's analysis. A short review of the procedure of civil litigation in the Dutch Republic is therefore indispensable. Conflicts concerning share transactions on the Amsterdam market would usually first come up before the local court of Amsterdam. The archives of this court have been lost, however, so my argument is based on the extended sentences that are available in the archives of the Court of Holland and – to a lesser extent – the High Council. The Court of Holland was the court of appeal for cases that had come up before one of the local courts in Holland. After this court had pronounced judgment, litigants could appeal to the High Council, but this court was neither more authoritative, nor more influential; the only difference was that the High Council also had jurisdiction over the province of Zeeland.[20]

The near total loss of the archives of the local court of Amsterdam is a pity, but these sources are not indispensable for my argument, since my main interest concerns the development of jurisprudence on share trade. It is to be expected that the local court of Amsterdam could very well deal with most of the share-trade-related conflicts. There are indications that share traders went to the Amsterdam court to exact payment or delivery of a share from their counterparties[21], but these were probably not

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[19] Avner Greif, 'Reputation and coalitions in medieval trade: Evidence on the Maghribi traders', *The journal of economic history* 49 (1989) 857-882.

[20] M.-Ch. le Bailly and Chr. M.O. Verhas, *Hoge Raad van Holland, Zeeland en West-Friesland (1582-1795): de hoofdlijnen van het procederen in civiele zaken voor de Hoge Raad zowel in eerste instantie als in hoger beroep* (Hilversum 2006) 7.

[21] This is based on the *insinuaties* in the protocols of Amsterdam's notaries. An *insinuatie*, or notarial summons, was usually the first step in legal action. The protocols of 1672 and 1688, two years with

the most interesting cases. However, if one of the parties was convinced that there were several possible interpretations of a lawsuit, he would appeal the judgment of the lower court to the Court of Holland. Hence, those cases are particularly important for a reconstruction of the development of a legal framework.

The procedure of litigation before the Court of Holland was as follows. The plaintiff first submitted a petition to the court, listing a short summary of the case and his principal arguments. The court then, provided that it had approved the petition, entered the case onto the scroll (*rol*), the list of cases to be dealt with by the court. Thereafter, the plaintiff could summon the defendant to appear in court. The plaintiff's solicitor then submitted his claim to the court, to which the defendant could respond within two weeks' time. Thereafter, both parties could submit a rejoinder, which could take another four weeks in total. Both parties had now set forth their positions, but the court could ask the parties to submit more information or to prove a certain argument.

Naturally, both the plaintiff and the defendant adduced evidence, for example attestations before a notary, questionings of witnesses and other forms of written evidence such as brokers' records.[22] Conflicting parties often asked other merchants or brokers – people, in sum, who were demonstrably well informed about the share trade – to attest before a notary public.[23] They attested, for instance, the customary way of trading shares or the share price at a certain date. They could also give a report as a witness.[24] Case files that contain all written evidence are available for some lawsuits.[25]

When the court had collected all the necessary information, it pronounced judgment. A report of the court procedure was included in the collection of extended sentences of the Court of Holland. This collection, as well as the collection of extended sentences of the High Council, contains reports of all cases in which the judges took some sort of action. These collections thus also contain lawsuits in which, for instance, the judges referred the litigants to mediators. This means that my sources are

large price fluctuations and consequently many conflicts between share traders, contain high numbers of *insinuaties*. It is very well possible that these conflicts were also brought before the local court. Only one conflict stemming from a transaction in 1672 and one from a transaction in 1688 reached the Court of Holland, however.

[22] See for the types of evidence accepted by the courts: Gelderblom, *Confronting violence,* 272-3.

[23] Cf. Van Meeteren, *Op hoop van akkoord*, 172-3. According to Van Meeteren, for an attestation to be credible, it had to be attested to a notary public as soon after the event had happened as possible: Van Meeteren, *Op hoop van akkoord*, 181.

[24] E.g. NA, Case files, inv. nr. IIT39.

[25] NA, Case files. Normally, litigants received the contents of the case file back when the court procedure was finished. However, some litigants did not collect the case files.

not biased by the selection procedure of the clerk of the court. It is true, however, that my method of research excludes those cases that reached amicable settlement before the courts' mediators. Again, this is not problematic: I have checked the reports of mediators in the years after 1672 – when the price crash led to a high number of conflicts – but the share-trade-related cases in these reports deal with relatively minor issues. The litigants whom the lower courts had ruled against simply appealed to the Court of Holland to postpone the execution of the lower court's judgment. Subsequently, the Court of Holland realized that it was no use to start a full court procedure again and referred the litigants to mediation.[26] So, to conclude, the extended sentences of the provincial courts of Holland are the right sources to use for an analysis of the development of jurisprudence on share-trade-related issues.

The legal framework

Conflicts about share transactions could involve three legal concepts: ownership and the transfer of ownership, endorsement* and the terms of settlement of a transaction. The courts of the province of Holland refined jurisprudence on these concepts by judging on a number of court cases. All three legal concepts will subsequently be addressed in the following subsections.

OWNERSHIP AND TRANSFER OF OWNERSHIP

Clear rules for share ownership and the transfer of share ownership were crucial for the development of the secondary market. Under Roman-Dutch law, the general rule for transfer of title was that ownership passed on the basis of delivery. Since VOC shares were not payable to the bearer, however, they could not be physically delivered, so a special rule for the conveyance of ownership was needed. The directors of the VOC were aware of this and therefore they included a rule that regulated how investors could ascertain and convey share ownership in the subscription book of 1602. Shareholders owned those shares registered under their account in the capital books that were kept by the company bookkeeper. Title to a share could be transferred by means of official registration.[27] This procedure was similar to the procedure for trans-

[26] NA, Court of Holland, inv. nrs. 1552, 1559.

[27] The first page of the Amsterdam chamber's subscription book stated this rule. Transcript of this page (followed by the entire book): Van Dillen, *Aandeelhoudersregister*, 105-6. See also chapter 1 section 1602 – The subscription on page 17 ff.

ferring unmovable goods such as real estate. Hence, the law also classified shares as unmovable goods.[28]

Van Balck *vs.* Rotgans (1622) marks an important step in clarifying the rules for ownership of a share. This case made clear that a shareholder could be certain that the shares listed on his account in the capital book of the VOC were his full property and that previous holders of the ownership of the share could not lay claims on it. The judges thus confirmed the legal force of the capital books. The plaintiff in this lawsuit, Allert van Balck, believed that he had right of vindication on the share he had transferred to Jan Hendricksz. Rotgans. Right of vindication means that the transferor of a good could reclaim ownership if the good had not been fully paid for or if he could prove that the purchaser had practiced fraud at the time of the transaction – for example by hiding his impending insolvency or fleeing from town without paying.[29] Van Balck had transferred a share, but he never received full payment and therefore claimed the ownership of the share.

Van Balck had sold this particular share to Hans Bouwer on April 5, 1610. Bouwer, for his part, sold a similar share to Rotgans on the next day. Rotgans approached Van Balck on the exchange, saying that he wanted to receive his share, but Van Balck replied that he did not know Rotgans and that he had traded with Bouwer. Rotgans then explained the situation and told Van Balck that he should transfer the share to him; he would pay him *f* 1,000 and Bouwer would see to the payment of the remaining sum. Van Balck agreed to transfer the share, but he never received full payment: Bouwer left Amsterdam in the following days to flee from his creditors. Van Balck went to court, where he requested seizure of the share, but the Court of Aldermen refused to adjudicate this; the judges reasoned that Van Balck no longer had title to the share after he had transferred it to Rotgans. Van Balck argued that he still had the right of mortgage of the share, because he had never received full payment. In his view, he still had a claim on Bouwer's share and hence on Rotgans' payment to Bou-

[28] The *Consultatien*, a famous compilation of early-modern Dutch jurisprudence, confirms that the courts treated shares as immovables in the winding up of estates: *Consultatien, advysen en advertissementen, gegeven ende geschreven by verscheyden treffelijcke rechts-geleerden in Hollandt* I (Rotterdam 1645) 77, 139-40. In England, it had been unclear after the foundation of the first joint-stock companies whether common law treated shares as real or personal property. This had implications for the transferability of shares. Subsequent incorporation acts added a clause that declared shares to be personal property: Harris, *Industrializing English law*, 117-8. In the Dutch Republic, there were no impediments to the transfer of unmovable goods other than the obligation to officially register a transfer.
[29] De Groot, *Inleidinge* II *Aantekeningen*, 236.

wer. Van Balck appealed the Aldermen's decision before two higher courts, but both the Court of Holland and the High Council also ruled against him.[30]

The fact that Van Balck and his lawyer appealed the courts' decisions twice indicates that this was not a clear-cut case. This lawsuit was not just about the right of vindication; Bouwer had practiced fraud, so there was little doubt that Van Balck had right of vindication. However, the courts had to balance Van Balck's right of vindication and the rights of Rotgans, who gave the impression that he was a sincere buyer who had paid for the transfer, against each other. Rotgans was not as sincere as he had the court believe, in fact, he was in league with Rotgans, but Van Balck did not succeed in convincing the court of Rotgans' insincerity.[31] In the end, the courts favored the interests of the buyer who had purportedly done nothing wrong.

This judgment had far-reaching consequences; with it, the courts safeguarded the interests of commerce. Share trading could have been severely hampered had Van Balck won this lawsuit, because in that case a buyer of a share would always have to fear that there was still a claim on the share he had bought, which would give the seller the right to claim it back.[32] This particular lawsuit, in other words, took away legal doubts that could have restrained investors from buying shares on the secondary market for VOC shares.

Interestingly, a few years before the High Court pronounced final judgment in this case, the VOC had also recognized the potential problems of transfers of shares that had claims attached to them. The VOC feared that buyers would not only lay a claim on the seller, but also on the company. It therefore changed the share transfer regulation. From 1616 onwards, the buyer of a share had to sign a statement when the bookkeeper added the share to his account that indemnified the company against any future claims. The buyer signed that he had accepted a 'good' share – a real share, in other words, a share that had formed part of the capital stock since 1602 – and that he was satisfied with it.[33]

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[30] Allert van Balck *vs.* Jan Hendricksz. Rotgans, 22 December 1622, NA, High Council, inv. nr. 715. The *insinuatie* that preceded the court case has been published by Van Dillen: Van Dillen, 'Isaac le Maire', 101 (doc. nr. 46). Pieter Symonsz. van der Schelling ended up in a similar situation after transferring shares to Hans Bouwer: Van Dillen, 'Isaac le Maire', 108 (doc. nr. 57).
[31] Van Dillen, 'Isaac le Maire', 121.
[32] D.L. Carey Miller, 'Transfer of ownership', in: Robert Feenstra and Reinhard Zimmerman (eds.), *Das römisch-holländische Recht. Fortschritte des Zivilrechts im 17. und 18. Jahrhundert* (Berlin 1997), 521-40, there 527, 532-4.
[33] Van Dam, *Beschryvinge* 1A, 144-5.

By extension, the same legal principle that the court applied in Van Balck *vs.* Rotgans was in force in the forward trade. In a series of judgments, the courts ruled that forward buyers could also expect the underlying asset of their forward contract to be a real share. There was no need to explicitly state in the contract that the share had to be free of any claims; the judges held the opinion that that was a matter of course. The Court of Holland thus clarified the procedure of transfer of ownership in a forward transaction.

The lawsuits that dealt with these matters were to a large extent similar to Van Balck *vs.* Rotgans, although they look much more complicated at first sight. These court cases all started with Pieter Overlander who found out that the share he had received in settling a forward contract was fraudulent. The seller had transferred a non-existent share to his account, which the company bookkeeper had knowingly executed. The complication of this case lies in the fact that many more traders were involved in this transaction; the transfer of a share to Overlander had settled the contracts of a chain of forward traders. The following description of the lawsuit shows that these chains of traders could prove problematic if conflicts arose between one pair of traders within the chain.

Pieter Overlander had bought a forward with a *f* 3,000 VOC share as underlying asset from Abraham Abelijn on 13 March 1609, but the share was eventually transferred to him by Hans Bouwer. Abelijn had a similar transaction (a forward with the same nominal value and settlement date) with Dirck Semeij, who for his part had bought a similar forward from Maerten de Meijere. When the contract was due for delivery, Semeij asked De Meijere to transfer the share directly to Abelijn. De Meijere, however, was to receive a share from Jacques van de Geer and Hans Pellicorne and therefore he asked Abelijn if he would be satisfied if they delivered the share to him. Abelijn referred the question to Overlander. But Overlander had just heard a rumor that Van de Geer and Pellicorne were on the verge of going bankrupt, so he refused to accept this deal, unless De Meijere would explicitly indemnify him against any trouble. De Meijere then proposed to let Hans Bouwer, who also owed a share to him, deliver the share instead. Overlander accepted this deal and Abelijn also trusted that this transfer would successfully settle all the abovementioned transactions: he traded with Bouwer on a daily basis. Overlander had the share transferred to Frans van Cruijsbergen, his brother-in-law, and each pair of traders in the chain came together once more to tear up the contracts and pay possible price differences.

A little later, however, the transferred share was found to be fraudulent, so Overlander started litigation. He summoned Abelijn – the only trader he had a rightful claim on – to appear in court and demanded that Abelijn replace the share with a good one. What makes this lawsuit so interesting is that the Amsterdam Court of Aldermen requested Overlander to give evidence under oath that he had been promised a 'sincere and sound' share on contracting this transaction. His claim would be dismissed if he did not take the oath, which reveals that the lower court did not acknowledge the legal principle that the buyer of a good can always expect this good to be delivered according to the conditions in the contract.

Abelijn's lawyer had made this particular point an important part of the defense, arguing that Overlander had requested to be indemnified against any troubles if Van de Geer and Pellicorne would have transferred the share, but he had not made any such requests when Abelijn proposed to let Bouwer transfer the share. Overlander had thus, according to the defense, accepted the share without reservations.

Overlander did not hesitate to make his declaration under oath and the court consequently sentenced Abelijn to replace the share. Abelijn then summoned his original counterparty Semeij, and the Aldermen pronounced the same judgment. Hence, the chain of share transactions became mirrored in a chain of court cases before the Court of Aldermen. Furthermore, every one of the defendants appealed the Aldermen's sentences to the Court of Holland, resulting in another chain of court cases (this time the other way around: Abelijn *vs.* Overlander, Semeij *vs.* Abelijn, etc.), but the appeals were disallowed. The judges of the Court of Holland did not require the litigants to make declarations under oath. It was clear for them that the forward traders could expect to be delivered a real share.[34] The Court of Holland thus clarified the procedure of transfer of ownership for forward transactions.

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[34] Abraham Abelijn *vs.* Pieter Overlander, NA, Court of Holland, inv. nr. 632, nr. 1614-50 and NA, High Council, inv. nr. 708, 30 July 1616. Dirck Semeij *vs.* Abraham Abelijn, NA, Court of Holland, inv. nr. 632, nr. 1614-73 and NA, High Council, inv. nr. 708, 30 July 1616. Maerten de Meijere *vs.* Dirck Semeij, NA, Court of Holland, inv. nr. 632, nr. 1614-76 and NA, High Council, inv. nr. 708, 30 July 1616. The traders also appealed the judgments of the Court of Holland to the High Council, but the trial before the High Council did not reveal any new information. The motivations behind these appeals were of a more pragmatic nature: since Bouwer had fled from Amsterdam, the last person in the chain – Semeij – had no one to lay a claim on. He therefore tried once more to be released from De Meijere's claim.
The cases concerning the chain of transactions starting with Pieter Overlander are almost identical; the Court of Aldermen pronounced judgment around late November or early December 1611, the appeals came up before the Court of Holland in 1614 and before the High Council in July 1616.
There was a similar lawsuit between Maerten de Meijere and Pieter van Duynen. Van Duynen had traded with Maerten de Meijere, who had an unsettled transaction with Bouwer. The share transfer

ENDORSEMENT

The lawsuits about the fraudulent share also show that the clearing of multiple forward contracts worked inefficiently in 1609. These pairs of traders first negotiated their transactions individually and then tried to arrange settlement of multiple contracts with a single share transfer. However, to accomplish that, they constantly had to consult their initial counterparty about whether he agreed that a third party would deliver the share to him. These traders could have spared themselves this trouble had they chosen to resell their original contracts rather than to draft new contracts for each transaction.

It is not surprising, however, that traders were hesitant to assign their forward contract to third parties before maturity; simple assignment of a financial claim to a third party meant that the trader would once again have to make an assessment of counterparty risk. He would have to consider, in other words, whether the new counterparty would live up to his agreements. The risk that the assignor did not inform the assignee about all the conditions of the contract further complicated assignation – there was always a chance that there was something wrong with the contract. Moreover, the assignee did not get in personal contact with the counterparty of the contract if he bought the claim from someone else and this might hide important information about the counterparty's reputation and creditworthiness. In sum, the assignee might be hesitant to take over the contract under these conditions.

Contract negotiability was the solution to these problems. This concept was introduced in the Netherlands under the reign of Emperor Charles V in 1541 with the intention of enabling merchants to assign letters obligatory more easily. The legal title to a contract could now be assigned to the assignee by way of endorsement, which literally means that the assignee puts his name on the back (*en dos*) of the original contract. If a debtor defaulted, his creditor not only had recourse to the debtor, but also to previous assignor. This implied that the legal status of the contract improved with every endorsement: the longer the list of endorsers, the more people the ultimate trader in line would have recourse to.[35]

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from Bouwer to Van Duynen settled both transactions. Maerten de Meijere *vs.* Pieter van Duynen, 27 January 1612, NA, Court of Holland, inv. nr. 626, nr. 1612-6.

[35] John H. Munro, 'The medieval origins of the financial revolution: Usury, rentes, and negotiability', *The international history review* 25 (2003) 505-562, there 553. Van der Wee, *The growth of the Antwerp market*

Endorsement also worked in derivatives transactions. The endorser wrote on the contract that he assigned his rights to the endorsee and both men signed the endorsement.[36] The lawsuit Adriaen van der Heijden and Daniel van Genegen *vs.* Abraham Abelijn (1614) shows the legal force of endorsements and the advantages of endorsements over the chains of traders that figured in the previous example. The conflict between Van der Heijden and Van Genegen and the defendant emerged after the plaintiffs refused to deliver a share. In the original contract, Van der Heijden sold a forward to Van Genegen. Less than a month after the contract date, on 3 April 1610, Van Genegen resold this claim to Abelijn. The resulting transaction was thus as follows: Abelijn would receive a share from Van der Heijden on 17 March 1611, the settlement date of the contract, and pay 150% for it. On the settlement date, Abelijn and Van der Heijden disagreed over how to settle the contract: Van der Heijden preferred a monetary settlement, whereas Abelijn requested that the share be delivered. They were unable to come to an amicable settlement and Abelijn started litigation. He summoned both Van der Heijden and Van Genegen to appear in court, arguing that they were both contractually obliged to deliver the share. Van Genegen replied that there was no ground to summon him, because Van der Heijden was sufficiently solvent to comply with the contractual obligations. The judges disagreed with him, however; they ruled that both Van der Heijden and Van Genegen were individually responsible to deliver the share.[37]

To summarize, Abelijn had a legal claim on the holder of the contract, but also on the original counterparty who had resold his claim. It made no difference to the judges that there were no bankruptcies or insolvencies involved in this case. The Amsterdam merchants were probably already familiar with the advantages of endorsements before the Court of Holland pronounced this judgment, but it would nonetheless have made potential share traders aware of the advantages of endorsements. Abe-

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II, 340-3, 348. Veronica Aoki Santarosa is preparing a PhD thesis in which she argues that the incentive to monitor the counterparty becomes smaller as the number of endorsers increases. The maximum number of endorsers in share transactions is two, so in my opinion, the negative effects of endorsements on monitoring would not have played a significant part on the seventeenth-century share market.

[36] For an example of an endorsed contract, see the options contract in the case file of the lawsuit between Willem Hendrick Tammas *vs.* Antonio Alvares Machado, 1689, NA, Case files, IIT39. The earliest endorsements I have found date from 1609. In the chaotic aftermath of Le Maire's bear raid, many forward traders wanted to be sure who their counterparty was. Several notarial deeds show that forward contracts had been resold, e.g. *insinuatie* 10 August 1610, SAA, Notaries, inv. nr. 120, fo. 99v; *insinuatie* 16 August 1610, SAA, Notaries, inv. nr. 209, fo. 181v; *insinuatie* 21 August 1610, SAA, Notaries, inv. nr. 120, fo. 99v-100r.

[37] Adriaen van der Heijden and Daniel van Genegen *vs.* Abraham Abelijn, NA, inv. nr. 633, nr. 1614-118.

lijn's position was similar to that of Overlander and other unwary buyers on the share market, but his legal position was much better. Furthermore, Abelijn did not have to make an assessment of the reputation and creditworthiness of his contractual counterparty Van der Heijden, because he also had recourse to Van Genegen. This judgment spread knowledge about the benefits of endorsements on the share market and might very well have persuaded traders to participate in the forward market rather than in the spot market, because endorsed forward contracts were stronger than spot contracts; it was a significant advantage to have recourse to several counterparties.

With this legal concept clearly defined, the legal framework was in place. From the 1630s onwards, traders knew the legal force of the various transactions that they could choose among. Also, property rights were now clearly defined. Finally, and most importantly, participants in the secondary market for VOC shares could predict how the courts would judge in certain types of conflict. This legal certainty reduced the chance of becoming involved in a court case and thus reduced transaction costs.

Terms of settlement

The outcome of share-trade-related court cases was not always to the benefit of the development of trade. Court judgments of the early seventeenth century confirmed that it was possible to delay the settlement of a forward contract for a seemingly indefinite period of time. Buyers simply delayed requesting delivery of the share until it became profitable for them to so. Until that moment, they had postponed settlement, for instance under the pretext that they needed some more time to gather the money needed for the settlement. The seller, meanwhile, could urge the buyer to accept the share, but he could not legally force him to do so. When the buyer finally requested delivery of the share, the seller could try to object to this claim by arguing that it was unreasonable to suddenly request delivery months after the original settlement date, but the buyer's case stood stronger in court: the judges would decide on the basis of the original forward contract, which stated that a share should be delivered at a certain price after a certain term, without a limitation to the contract's validity. Hence, they would enforce the contract.[38]

[38] E.g. Isaac le Maire *vs.* Louis del Beecke, NA, Court of Holland, inv. nr. 633, 1614-134 and Isaac le Maire *vs.* Louis del Beecke, NA, Court of Holland, inv. nr. 664, 1624-64. (In spite of the fact that the same litigants appear in both cases, these are different lawsuits.)

It is not hard to see how this hampered the development of trade: it was a rather uninviting prospect for forward sellers that their counterparties could simply linger over settlement until the deal would become profitable to them. The market itself found a solution for this problem. From the 1630s onwards, it became customary to settle a forward contract within three weeks after the original settlement date. Forward buyers could use this period to gather the money needed for the share transfer or to try to find a counterparty willing to roll over the contract. This market custom did not have the status of a legal rule, however. In the early 1640s, for instance, traders already referred to it in their plea before court, but the judges took no notice of it.[39] The market itself, however, did regard it as an official rule; stockbrokers Sebastiaen da Cunha and Hendrick van Meijert attested before a notary in 1659 that a buyer lost title to the forward contract after the customary settlement term had expired.[40] This was thus an example of self-regulation: the trading community expected its members to settle their contracts within three weeks' time after expiry of the contract. The absence of conflicts over contract settlement that came before a higher court after 1641 suggests that the traders complied to a large extent with this informal rule.

In the mid-1680s, share trader Samuel Cotinho decided to test this rule's legal status once again. His lawsuit against Vincent van Bronckhorst is especially interesting, because its case file, containing various attestations, survived. This case thus shows how the judges in the Dutch Republic took statements of market practitioners into consideration. The case went as follows: on 25 June 1683, Van Bronckhorst sold a forward with a *f* 12,000 VOC share as underlying asset to Cotinho. Three days after the settlement date (1 September 1683), Van Bronckhorst notified Cotinho that he wanted to deliver the share, but Cotinho answered that he was unable to receive it. Van Bronckhorst then asked a notary to serve an *insinuatie* containing a request to deliver the share to Cotinho. Cotinho was not at home, though, but his maid listened to the *insinuatie*. Since no subsequent action was taken on the side of Cotinho, Van Bronckhorst asked permission of the Court of Aldermen to sell the share on the market instead, which the Aldermen granted. A little later, however, Cotinho started litigation; he argued that it was unreasonable that Van Bronckhorst had sold the share to

[39] E.g. Philips de Bacher *vs.* Frederick van Schuijlenburch (20 December 1641), NA, Court of Holland, inv. nr. 739, nr. 1641-166. This lawsuit shows that the market custom had already become established, but the court did not yet rule accordingly: the buyer had waited a month before he requested delivery of the share, but the court still ruled in favor of his claim to get the share delivered.
[40] Attestation (11 July 1659), SAA, Notaries, inv. nr. 2207, p. 95.

a third party before the customary term for settling forwards had expired. Cotinho held a strict view of the market custom. In his opinion, forward buyers held title to an unsettled contract until the customary term had expired whatever happened in the meantime. He thus regarded it as an extension to the contract's term and wanted to see whether the court would approve of this view.

Both litigants adduced attestations to support their case. A group of regular traders attested on 4 October 1683, only days after the *insinuatie*, that it was customary to settle contracts after two or three weeks, but traders should immediately settle once the counterparty had requested settlement through an *insinuatie*. The attestation used by Cotinho's solicitor was dated 27 October 1684: a number of brokers stated before a notary that the customary settlement term was three or four weeks. In the end, the court ruled in favor of Van Bronckhorst: it had not been unreasonable that he had sold the share before the customary term for delivery had expired.[41]

The market custom regarding the term for contract settlement did thus not have legal status. A contract neither lost its validity after the term had expired[42], nor were traders able to claim title to a contract on the basis of the market custom. But the courts' judgments did not stop the market from using its customary practices for the settlement of contracts. To be sure, from the end of the 1680s onwards, the market custom was explicitly mentioned on the printed forward contracts used in the forward trade. And, what is more, this extra clause imposed a fine on non-compliance with the market custom. A trader who settled his contract with a *f* 3,000 share as underlying asset too late was fined *f* 7.50 per day. I have found no evidence of traders actually paying this fine, but the fact that this stipulation was included on the printed contracts suggests that it was widely accepted by the trading community. Interestingly, moreover, the clause also stipulated that a contract would lose its validity should its holders refrain from settling it within three months.[43] The trading community thus imposed its own rules where legal enforcement proved to be inadequate. In the case of terms of settlement, self-regulation facilitated the settlement procedure. Without it, however, the market would still have functioned. The next section will address a self-regulatory

[41] Samuel Cotinho *vs.* Vincent van Bronckhorst, 1689, NA, Case files, IIK98.
[42] See footnote 39.
[43] Forward contract 14 June 1688, SAA, PIG, inv. nr. 654. The bottom lines of this contract stipulated that it should be settled within 20 days after the original settlement date. If the seller did not comply, the price would thereafter be reduced by a quarter of a percentage point a day. If the buyer did not comply, the price would be increased by a quarter of a percentage point a day. In any case, the contract would lose its legal validity three months after the original settlement date.

mechanism that was a sine qua non for the scale of forward trading of the second half of the seventeenth century.

Private enforcement mechanism

The ban on short-selling of February 1610[44] severely constrained forward trading. Traders were allowed to sell forward contracts only with shares they legally owned as underlying asset, but share traders continued short-selling and the authorities felt compelled to repeat the ban several times. In these reissues, the first of which appeared in 1621, they explicitly stated that brokers were not allowed to negotiate contracts that contained a renunciation clause. Moreover, any contract containing such a clause would be declared null and void. Apparently traders negotiated contracts in which they explicitly renounced the ban on short-selling.[45]

The use of contracts containing a renunciation clause was nevertheless widespread. All examples of printed contracts that I have found, dating from different periods throughout the seventeenth century, contain such a clause. To be sure, even Vincent van Bronckhorst, himself a councilor of the High Council, did not hesitate to use them.[46] The judges understood that they could not pronounce the entire forward share trade illegal, so they approved the use of the contracts containing a renunciation clause, which shows once more that the courts were disposed to supporting the development of the share trade.

At the same time, however, the Dutch legal system did not enforce short sales. So if a litigant could convincingly prove that his counterparty had not owned the share that was subject of a forward sale at the contract date and during the contract's term, the court would declare the contract null and void. In his case against Andries Polster in 1633, Severijn Haeck convinced the judges of the Court of Holland that Polster had not owned the underlying asset of the forward he had sold him during the contract's term. The court declared the contract null and void, even though Polster had immediately made good tender of the stock after Haeck announced that he was about to start litigation.[47]

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[44] See chapter 1, section 1609-10 – Isaac le Maire on page 24 ff.
[45] Smith, *Tijd-affaires,* 57-60. See, for the bans, footnote 14.
[46] Samuel Cotinho *vs.* Vincent van Bronckhorst, 1689, Court of Holland, Case files, IIK98.
[47] Severijn Haeck *vs.* Andries Polster (28 March 1633), NA, Court of Holland, inv. nr. 703, nr. 1633-36-1. The court pronounced the same judgment in a similar case between Severijn Haeck and Dirck van der Perre, which came up in court on the same day: Severijn Haeck *vs.* Dirck van der Perre (28 March 1633), NA, Court of Holland, inv. nr. 703, nr. 1633-36-2.

A lawsuit that came before court 34 years later indicates that traders were fully aware of the fact that the courts would never enforce short-sale contracts. The defendants in the case started by Sebastiaen da Cunha did not even bother to appear in court. Just like Haeck, Da Cunha wanted to be relieved from his contractual obligations. In 1665, he had bought a number of forward contracts with VOC shares with a nominal value of several thousands of guilders as underlying assets from a total of nine counterparties. During the terms of these contracts the Second Anglo-Dutch War (1665-7) broke out, leading to a relative price decrease of 35% (from around 490%[48] in 1664 to 315%[49] in September/October 1665). Da Cunha realized that he was about to lose a lot of money were he to comply with the contracts and he therefore tried to be relieved from his contractual obligations by taking these contracts to court. The report of the court's session does not state the details of Da Cunha's contracts, but assuming that he traded one forward contract with each of the nine defendants in this lawsuit, that all shares had a nominal value of *f* 3,000 and that the price dropped by 175 percentage points[50] after he bought the forwards, he could have lost up to *f* 50,000 on these forwards. The defendants probably knew that Da Cunha could produce convincing evidence and therefore they realized that they had nothing to win by going to the courtroom in The Hague. They were sentenced by default after the fourth no-show; the court declared the contracts null and void.[51]

Da Cunha's strategy could have posed a big threat to the growth of the forward market: many forward traders owned only a small or zero amount of shares in the capital books of the VOC. Hence, if they sold forwards, these were likely to be short sales, which gave their counterparties the opportunity to legally renege on their purchases. Consequently, forward short sellers would always lose on their transactions: on expiry of the contract, buyers, whose behavior was solely influenced by economic con-

[48] During the period June-August 1664, the share price fluctuated between 490 and 500%: SAA, Merchants' accounts, inv. nr. 39, fo. 73.
[49] SAA, Deutz, inv. nr. 291, fo. 46.
[50] This would have been the maximum possible loss per share.
[51] Sebastiaen da Cunha *vs.* Michiel Rodrigues Mendes c.s. (27 May 1667), NA, inv. nr. 784, nr. 1667-60. This case was brought before the Court of Holland in first instance, but it is unclear to me why Da Cunha did not take the case to the Court of Aldermen first. Foreign merchants were allowed to litigate directly before the Court of Holland, but a plausible explanation may also be that one of the defendants (Joan Corver) was himself one of the judges in the Court of Aldermen in 1666: Johan E. Elias, *De Vroedschap van Amsterdam, 1578-1795* I (Haarlem 1903) 521. Names of the defendants: Michiel Rodrigues Mendes, Isaack Mendes da Silva, Moses de Silva (also acting on behalf of Moses Machado, Joan Corver, Louis Gonsales d'Andrada, Manuel Lopes Villareal, Gerrit van Beuningen and Cornelis Lock).
Da Cunha could prove that the forward contracts were short sales because the sellers had placed the shares on Da Cunha's 'time account' in the course of the terms of the contracts, thus trying to make the sales appear legal.

siderations, would comply with their contracts only if this would be profitable to them. Such was not the case, however. Very few forward buyers – only two examples can be found in the archives of the Court of Holland – employed this strategy to avert losses. It could be possible that these cases were seldom brought before the provincial court, for this was no complicated juridical matter. Hence there could have been little ground to lodge an appeal against the local court's judgment.[52] The archives of the Court of Aldermen cannot be consulted to check this, but there are no signs whatsoever that these cases ever existed: a logical first step for litigation on the basis of the bans on short-selling was to request *aanwijzinge* in the VOC capital books (a buyer could ask a seller to show his ledger in the capital books to verify whether he was the legal owner* of a share) via a notarial *insinuatie*. Such *insinuaties* appear frequently in the protocols of the notaries of Amsterdam around 1610[53], but they are largely absent thereafter. The conclusion must thus be that forward buyers rarely reneged on their contracts.

The explanation for this observation is that a private enforcement mechanism, based on honor, reputation and peer pressure, was in place on the secondary market for VOC shares. This mechanism prevented forward buyers from reneging. Only in cases where the amount of money at stake was too high (as in Da Cunha's case) did this private enforcement mechanism fail.

The strongest form of the private enforcement mechanism was in place in trading clubs like the *Collegie vande Actionisten* and a somewhat weaker form in the *rescontre* meetings. It should be stressed, moreover, that honor and reputation were very important personal assets in early modern societies in general, so some form of a reputational regulatory mechanism was always in place in early modern trade.[54] The contracts used in the forward trade emphasized the importance of a trader's honor: the names of the parties to the contract were preceded by the word 'honorable' and the traders were called 'luyden met eere' (men of honor) in the penalty clause at the bot-

[52] Please note that Sebastiaen da Cunha *vs.* Michiel Rodrigues Mendes c.s. was not an appeal case either, cf. footnote 51.
[53] These buyers did not ask for *aanwijzinge* because they wanted to be relieved from their contractual obligations – this was before the ban on short-selling – but because they feared that they would miss out on the first dividend distribution if their counterparties did not actually own the shares they had sold.
[54] See, e.g., Goldgar, *Tulipmania.*

tom of the contracts. The personages in Josseph de la Vega's *Confusión de confusiones* also repeatedly stress the importance of honor and reputation in the share trade.[55]

This was all very well, but the participants of the high-risk forward market, where deals were made that were unenforceable by law, wanted to be sure that their counterparties not only said they were honorable men, but that they also acted accordingly. The correspondence between Lord Londonderry (born Thomas Pitt, Jr.) and his cousin George Morton Pitt, dating from 1723, shows that there were indeed a large number of disreputable traders on the Amsterdam exchange who preferably bought forwards and received option premiums. If it turned out that they would suffer a loss on these contracts, they simply reneged. George Morton Pitt added to this that merchants of Amsterdam did not trade with these particular traders; only traders who were unaware of their bad reputations (e.g. foreigners) would enter into a transaction with them.[56] But how could a trader have information about the creditworthiness and reputation of all possible counterparties?

First of all, brokers gathered information about as many traders' reputations as possible[57], but the regular meetings of the *rescontre* and the trading clubs provided an even better solution to the reputation problem. The strength of these meetings was that a large number of traders were regularly present at the same location. Information about the reputations of the participants of the trading sessions spread quickly amongst the traders present and a trader with a bad name would find it hard to find counterparties for his transactions. Moreover, traders learnt to know each other very well during the sessions, all the more so since reciprocal transactions occurred frequently.

The private enforcement mechanism of the trading clubs went one step further. These clubs were private meetings and participants could be expelled.[58] Once a

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[55] When, for example, the shareholder explains the use of options, he says: 'Even if you do not gain through the "opsies" the first time, you do not risk your credit, and do not put your honor in danger.' De la Vega, *Confusión de confusiones*, 77 (p. 24 in the 1688 edition, p. 7 in Kellenbenz' English edition).

[56] George Morton Pitt to Lord Londonderry, 23 April 1720, quoted in: Larry Neal, 'Reflections from the Mirror of Folly: The adventures of Lord Londonderry in the stock markets of Paris, Amsterdam, and London in the bubbles of 1719-1720', *Working paper* (2010) 13-4. George Morton Pitt characterized these disreputable traders as 'Scrub Jews'.

[57] See chapter 1, section 1630s and 1640s – Intermediation and a changing composition of the trading community on page 36 ff.

[58] The organization of the Amsterdam trading clubs bears close resemblance to the London Stock Exchange in the eighteenth century. Both were closed associations of traders characterized by a high degree of self-regulation: Larry Neal, 'The evolution of self- and state-regulation of the London Stock Exchange, 1688-1878', in: Debin Ma and Jan Luiten van Zanden (eds.), *Law and long-Term economic change: a Eurasian perspective* (forthcoming, Stanford 2011) chapter 14.

share trader was allowed in – it is very well possible that new members were admitted only after the intercession of one of the members – he had the possibility to perform a large number of possibly profitable transactions. If a trader failed to live up to the standards of the club, however, he would be excluded from the trading sessions and his chances of participating in the trading sessions were gone.[59] It was thus in the interest of all parties involved to live up to their agreements.[60] An attestation by four frequent participants stresses the force of honor and reputation within the community that traded in the clubs: they attested how the traders in the clubs rarely used written contracts for their transactions. Oral agreements sufficed for transactions between honorable traders.[61]

As mentioned briefly in chapter 1, it is moreover likely that the trading sessions in the clubs were chaired by some kind of committee that could also adjudicate in conflicts that arose from dealings in the meetings. The committee received its authority from the community of participants – a trader who entered the trading clubs also subordinated himself to the adjudicating board. The principal indication for my hypothesis that there such committees were present in the trading clubs is that the main trading club was called *Collegie vande Actionisten*. The word 'collegie' implies that there was some sort of governing body that supervised the meetings. Moreover, the name of this club was similar to that of a typical tulip-trading club that regularly met during the Tulipmania of 1636-7: *Collegie vande Blommisten.* Goldgar has shown that during that winter, most of the trade in tulip bulbs took place in inns, where *collegien* (e.g. *Collegie vande Blommisten*) presided over the trading sessions. The *collegien* acted as committees of tulip experts who made the rules for the trade that took place in the inns, organized continuous auctions and also adjudicated in conflicts between bulb traders. Peer pressure, which weighed heavily in the small community of bulb traders, gave the *collegie* its power.[62]

Interestingly, a known regulation of the eighteenth-century *rescontre* meetings explicitly mentions the presence of a secretary, an official who could impose fines and

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[59] Without the possibility of exclusion, the free-rider problem arises. The possibility of exclusion was therefore key to the functioning of the trading clubs. James M. Buchanan, 'An economic theory of clubs', *Economica* 32 (1965) 1-14.
[60] North, *Institutions*, 33.
[61] Attestation 9 January 1704, SAA, Notaries, inv. nr. 6956, fo. 23. Names of the attestants: Henri Alvares, Jacob Gabay, Moises Coronel and Daniel Dias de Pas. It is unclear why these four men made this attestation before notary Van Velen.
[62] Anne Goldgar, *Tulipmania: money, honor, and knowledge in the Dutch Golden Age* (Chicago 2007) 191-2.

a board of 'deciseurs' that adjudicated in conflicts.[63] Presumably, the *rescontre* participants had recognized the advantages of an adjudicating board for the settlement sessions. So, although direct evidence of regulatory and adjudicating bodies is lacking for the trading clubs of the second half of the seventeenth century, the presence of such bodies in similar trading clubs in the 1630s and the eighteenth century makes a reasonable case for their presence in the share-trading clubs.

The trading club ledgers of the Portuguese Jewish merchants Jacob Athias and Manuel Levy Duarte[64] give proof of the effectiveness of these clubs. They show the immense turnovers of Athias and Levy Duarte during each session, but equally interesting is the fact that they regularly traded forwards with Christian participants of these sessions, whereas I have found few examples of high-risk (i.e. forward) transactions between members of different religious communities on the market outside the trading clubs. The peer pressure and the reputational mechanism in the trading clubs persuaded traders to enter into a transaction with traders they did not know very well. But for reasons mentioned before, the large turnover in the trading clubs did not lead to an increase in traders trying to legally renege by suing their counterparties for short selling. What is more, even insolvent traders rarely tried to become relieved of their forward deals by asking the courts to declare their forward purchases null and void.[65] They chose the lesser of two evils: an honorable bankruptcy was apparently less bad than a dishonorable reneging. And perhaps they hoped to be able to return to the exchange shortly after their bankruptcy had been dealt with.

Sebastiaen da Cunha was probably not indifferent about his reputation either, but the losses he was about to incur on the forward contracts that were subject of the 1667 lawsuit were simply too high. And that was exactly the weakness of the private enforcement mechanism based on traders' reputations: there was a limit to the extent to which the participants of the trading clubs valued their reputations. If the share

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[63] Smith, *Tijd-affaires*, 135-8. It is unknown when this regulation was put into effect, but this is likely to have happened before 1 May 1764.

[64] SAA, PIG, inv. nrs. 687-8.

[65] In June 1672, Balthasar da Cunha (not to be confused with Sebastiaen da Cunha – cf. footnote 51), one of the largest stock traders on the Amsterdam exchange, transferred the ownership of two houses and a *f* 6,000 share in the Enkhuizen chamber of the VOC to Miguel Netto de Paiva: deed of conveyance and transfer (28 June 1672), SAA, Notaries, inv. nr. 4074, fo. 485-7. He had obviously financial difficulties, but did not renege on his forward deals.
Frans Pardicque became insolvent in October 1688. He was unable to fulfill his obligations because he did not receive payment on an unsettled transaction with Coenraet van Beuningen. He did not, however, try to let the courts declare his forward purchases null and void, but rather let his counterparties lay claims on his insolvent estate: record containing the unsettled forward deals of Pardicque (22 October 1688), SAA, Notaries, inv. nr. 4135, fo. 712-4.

price fell very steeply, traders had to make a difficult assessment: they could choose to renege and lose their carefully accumulated reputation, or they could comply with their contracts and lose a large amount of money. In Da Cunha's case, the scale tipped toward reneging. And indeed, the price fall during the term of his forwards was clearly exceptional: the years 1664-5 witnessed the largest decline in share price in the history up until that time of the VOC.

Only seven years later, however, the share price experienced an even greater fall. In 1672, the share price fell to 280% in June/July, whereas shares had been sold for 560% in July 1671.[66] For a number of traders, this price fall was so large as to outweigh an unblemished reputation. Unsurprisingly, then, all instances of *insinuaties* explicitly mentioning the intention to renege on the basis of the States of Holland bans date from this year. Antonio Lopes de Castro Gago, alias Jacob Lopes de Castro Gago, for example, answered to two *insinuaties* served upon him that the sellers had sold him nothing but 'air' and that he would obey the official bans. He had bought two forwards in January 1672 with a nominal value of *f* 3,000 each at 485 2/3% and 487%. In early May 1672, the settlement date for both contracts, the share price stood at 325%. He would thus have lost almost *f* 10,000 on these forwards.[67]

The price crash of 1688, when the VOC shares subsequently lost 18% of their market value in late August and another 9.5% in October[68], did not lead to a similar pattern of reneging forward traders. The most plausible explanation is that this price fall was not large enough for the traders to give up their good reputations on the market; the 1688 price decrease was only half as large as its 1672 counterpart. Another, related, explanation is that there was no reneging trader in 1688 who gave the initial impetus for a chain of non-compliances. The participants of the clubs all traded with each other and all tried to keep their portfolios balanced. The individual forwards were risky transactions, but the traders reduced their portfolio risk by netting out their transactions with opposite transactions.[69] This system worked well until one of the traders pulled out. The portfolios of all of his counterparties would then no longer be balanced, which increased their incentive to also renege on one or more of their li-

[66] See, for a more detailed discussion of the 1672 price crash, p. 161 ff.
[67] *Insinuaties* Raphael Duarte (18 May 1672) and Manuel Mendes Flores (19 May 1672): SAA, Notaries, inv. nr. 2239, fo. 183, 199. Gaspar Mendes de Garvoijs gave a similar answer to an *insinuatie* requesting him to receive a share at 530% on 1 July: *insinuatie* Antonio and Miguel Guitieres Martines (1 July 1672): SAA, Notaries, inv. nr. 2239.
[68] The share price decreased from 560 to 460 in August and further to 416 in October. See, for a more detailed discussion of the 1688 price crash, page 60 ff.
[69] See, for a more detailed analysis, chapter 4.

abilities, thus possibly starting a chain of unfulfilled transactions. The 1672 price crash thus highlighted the weak spot of the trading clubs with their private enforcement mechanism: it was founded on the honor and reputation of its participants, but consequently, when one of the participants chose to pull out, the system became unbalanced and there were no formal institutions to fall back on.

Conclusions

Together, the legal framework and the private enforcement system provided a high level of certainty that the market would consummate all transactions. The two systems may seem to have been in place on fully separate markets; one where the rule of law was indispensable for the development of the market and the other where the rule of law was redundant because informal institutions replaced it. Yet they were strongly connected to each other. The private sub-market could never have developed into an effective trading place without a clear legal framework being in place and hence the two parts are inextricably intertwined. I have already mentioned the direct connection between the two: the coming into place of a clear legal framework contributed to the entry of new groups of participants on the share market and thus necessitated the emergence of sub-markets where there were no restrictions as to the amount of shares that could be traded – the market simply grew too large for its legal boundaries. But the sub-markets were in yet another way connected to the principal share market.

It was important that the traders in the trading clubs knew that they participated in a sub-market where other rules applied than on the principal market. This is a marked difference from the trade in tulip bulbs during the Tulipmania. This trade also took place in clubs, the so-called *collegies*, but there did not exist a principal market for bulbs with the same level of development as the market for VOC shares. This became problematic when the bulb price collapsed in early 1637. Many tulip traders went to court to extort payment from their counterparties, but the courts refused to pronounce judgment in tulip-trade-related lawsuits.[70] Thus emerged a situation where

[70] Goldgar, *Tulipmania*, 237-51. E.H. Krelage, *Bloemenspeculatie in Nederland: de Tulpomanie van 1636-'37 en de Hyacintenhandel 1720-'36* (Amsterdam 1942) 96. The reasons why the courts refused to do so remain unclear. Goldgar eagerly uses the courts' refusal to support her argument that civic harmony stood at the basis of the Dutch society: the courts encouraged traders to settle their conflicts in the friendliest way. It is undoubtedly true that arbitration and mediation were important in the Dutch legal system, but why would the courts refuse to attend to these cases? Their number could have clogged the system, as Goldgar put forward, but these cases were all similar: one judgment would have created a precedent. I think the principal motivation for the courts was that the tulip trade had attracted large numbers of new participants only months before the bubble burst. The courts might have argued that the tulip

traders believed that the transactions they had entered into would be enforced, but as it turned out, their trades were not considered to be legally valid. Consequently, traders lost confidence in the institutions of the tulip trade.

In the case of the share trade, however, the participants knew that the courts would not enforce the transactions they performed within the trading clubs. They were aware of this situation because the legal framework of the share trade had been clearly defined in the first decades of the seventeenth century. Hence, traders were well aware that there was a chance that their counterparties in the trading clubs would renege, and they implicitly accepted this as soon as they started participating themselves. They did not lose confidence in the system in the event that one trader reneged. However, the reneging traders of 1672 did make the trading community realize how risky the forward trade was. The next chapter will discuss how traders used different types of transactions to manage and control the risks of their trades.

Appendix – Short summary of court cases

Table 3.1 Court of Holland, Extended sentences

Inv. nr.	Year – nr.	Plaintiff	Defendant	Legal concept	Short summary
626	1612-6	De Meijere	Van Duynen	Transfer of ownership	Buyers may expect shares transferred to them to be genuine and freed from any claims.
632	1614-50	Abelijn	Overlander	Transfer of ownership	Idem Additionally, there is no need to explicitly ask for indemnification against any future troubles.
632	1614-73	Semeij	Abelijn	Transfer of ownership	Idem
632	1614-76	De Meijere	Semeij	Transfer of ownership	Idem
633	1614-118	Van der Heijden and Van Genegen	Abelijn	Endorsement	All endorsers are individually responsible for compliance with a contract, even if the endorsee is solvent.
633	1614-134	Le Maire	Del Beecke	Terms of settlement	A contract does not lose its validity over time.
664	1624-64	Le Maire	Del Beecke	Terms of settlement	A contract does not lose its validity over time.
703	1633-36-1	Haeck	Polster	Upholding of the ban on short-selling	Short-sale contracts are null and void.
703	1633-36-2	Haeck	Van der Perre	Upholding of the ban on short-selling	Idem
784	1667-	Da Cunha	Rodrigues	Upholding of the	Idem

contracts were invalid because the new entrants to the market were unaware of its rules and customs; more experienced traders might have misled them to pay the exorbitantly high prices.

	60		Mendes c.s.	ban on short-selling	

Table 3.2 Court of Holland, Case files

Inv. nr.	Year	Plaintiff	Defendant	Legal concept	Short summary
IIK98	1689	Cotinho	Van Bronckhorst	Terms of settlement	There are limits to a contract's validity: a buyer cannot reverse his decision after the seller has made good tender of stock, but he has refused to receive it.

Table 3.3 High Council, Extended sentences

Inv. nr.	Year	Plaintiff	Defendant	Legal concept	Short summary
708	1616	Abelijn	Overlander	Transfer of ownership	Buyers may expect shares transferred to them to be genuine and freed from any claims. There is no need to explicitly ask for indemnification against any future troubles.
708	1616	Semeij	Abelijn	Transfer of ownership	Idem
708	1616	De Meijere	Semeij	Transfer of ownership	Idem
715	1622	Van Balck	Rotgans	Ownership	Seller has no right of vindication on a share that has been transferred in the capital books, but which had only partly been paid for. Recognition of the legal force of the capital books.

4 RISK SEEKING AND RISK MITIGATION

Introduction

The development of the derivatives market, which already started in the first decade of the seventeenth century[1], enabled traders to participate in the share trade and hence benefit from share price movements without locking up a large amount of money in VOC capital stock. This was not the only advantage the derivatives market provided, however. From the mid-seventeenth century onwards, it also offered sophisticated risk-management possibilities to the traders who were active on the derivatives market. According to Ranald Michie, 'the design of trading methods which permitted investors to buy and sell securities remuneratively, without exposing themselves to undue risk' was even the most important innovation of the Amsterdam securities market.[2] Using data from protocols of Amsterdam notaries and private papers of merchants who were active on the market, this chapter explores which trading methods were available on the market and how traders could use these to manage and control their financial risks. I will show that in the second half of the century, the derivatives market allowed investors to allocate and mitigate risks according to their needs. It thus fulfilled a core function of financial systems as designated by Merton and Bodie.[3]

There were two kinds of risk involved in trading on the secondary market for VOC shares. Firstly, each transaction, and especially those on the forward market, carried a risk that the counterparty would default. The legal framework and the private enforcement mechanism of the trading clubs significantly reduced the chance of reneging, but counterparty risk was not negligible. Secondly, every investor with a position in the VOC faced portfolio risk – the risk of fluctuations in the value of a portfolio.

I will show in this chapter how traders managed counterparty risk by choosing between different derivatives. More specifically, they chose to use derivatives instead of spot transactions to reduce the risk of non-payment. Moreover, they shifted from forwards to repos if they deemed contract nonperformance risk too high. The next section analyzes how traders used derivatives to control portfolio risk. They used both forwards and options to leverage their risk and to protect their portfolios against un-

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[1] See chapter 1, section 1607 – The emergence of a derivatives market on page 20 ff.
[2] Michie, *The global securities market*, 28.
[3] Robert C. Merton and Zvi Bodie, 'A conceptual framework for analyzing the financial environment', in: Dwight B. Crane et al. (eds.), *The global financial system: a functional perspective* (Boston 1995) 3-31, there 5.

wanted price fluctuations. Lastly, contingency claims were added to derivatives contracts in order to specifically allocate price risks that could result from certain events, such as peace negotiations.

The picture that emerges from this chapter is that the high level of sophistication of the derivatives market allowed share traders to allocate and mitigate risks according to their needs. This development completed the transition from an accidental market where corporate equity could be bought and sold to a full-fledged financial market. It is important to note that it became possible to control financial risks on the derivatives market only with the entry of a large pool of short-term speculators on the market that started in the 1640s. These speculators specialized in trading risks. Moreover, they were generally less risk-averse than the long-term horizon investors on the market. The speculators were willing to take on the risks that other investors wanted to mitigate.

The market for VOC share derivatives has been the subject of two previous studies. Smith tried to unravel the workings of the derivatives market by studying the official rules and regulations for forward and option trading in Amsterdam in the seventeenth and eighteenth centuries.[4] Gelderblom and Jonker paid attention to the emergence of repo transactions in the first decade of the seventeenth century[5] and to the beginnings of option and forward trading in Amsterdam from the late sixteenth until the first half of the seventeenth century.[6] I will add to these historical studies by analyzing how investors used the market to manage and control their financial risks. Murphy did something similar for the London option market of the 1690s.[7] She showed that a wide range of speculators used options for both risk-seeking and risk-management purposes. Interestingly, it becomes clear from Murphy's study that the late-seventeenth-century option traders had good knowledge of the factors that determine the size of the option premium. This indicates that they did not use this relatively complex financial instrument for gambling purposes; they were aware of how they could use options to hedge risks.

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[4] Smith, *Tijd-affaires.*

[5] Gelderblom and Jonker, 'Completing'. Gelderblom and Jonker argue that investors used the shares they owned in the VOC to attract extra debt capital to finance their businesses. Extensive research in primary sources has led me to come to a different interpretation of the use of repos: traders solely used this type of transaction to be able to finance their share dealings. I will go deeper into the use of repos in the section Counterparty risk.

[6] Gelderblom and Jonker, 'Amsterdam as the cradle'.

[7] Anne L. Murphy, 'Trading options before Black-Scholes: a study of the market in late seventeenth-century London', *The economic history review* 62 (2009) 8-30.

Counterparty risk

Both parties to a transaction face contract-nonperformance risk, either in the form of non-payment or non-delivery of the underlying asset of the transaction. Chapter 3 has analyzed how formal and informal institutions guaranteed the enforcement of contracts. This chapter, on the other hand, will discuss how different types of transactions and settlement procedures carried different levels of nonperformance risk. It will, in other words, explore how traders could use the diversity of options available on the market to manage their risk.

In the most basic form of a share transaction, a spot transaction, there is no time lag between negotiation and settlement of the transaction. Still, counterparty risk in a VOC share spot transaction was not negligible, because a large amount of money was needed for the purchase of a share – particularly from the 1640s onwards, when shares with a nominal value of *f* 3,000 cost on average more than *f* 12,000. Spot transactions therefore carried a risk that the buyer could not accumulate the money needed on short notice.[8] Traders could use derivatives to reduce non-payment risk, because fewer and smaller payments were needed for the settlement of forwards and options. However, counterparty risk in these transactions is higher because the underlying asset is transacted over time, thus increasing the risk that the counterparty would not live up to his agreement, due to a changing situation during the term of the contract.

Reduction of non-payment risk was effected when derivatives were settled without actually transferring the underlying asset and having to pay for the full value of the asset. The parties to a derivatives contract could also negotiate a monetary settlement, in which case one of the parties would pay the price difference between the contract and the market price. This settlement method is called direct settlement – the contractors negotiate the settlement directly with each other. It was widely used on the Amsterdam market for shares from the first decade of its existence. Hans Thijs († 1611), for example, regularly noted in his ledger that he had settled his forward contracts by paying the price difference.[9]

It was possible to use direct settlement to complete forward transactions throughout the century, but ringing, a more advanced settlement method, soon complemented the choice of settlement procedures. In a ring settlement procedure, not

[8] Merton and Bodie, 'A conceptual framework', 13.
[9] E.g. BT, inv. nr. 119K, fo. 209.

only the original counterparties to a contract can settle or cancel out that particular transaction, but also other traders holding similar contracts. Hence, fungibility of the traded assets is a necessary precondition for this settlement method. Contracts needed to have, in other words, the same underlying asset and settlement date. Then, if trader X held a forward purchase of trader Y, and trader Y held a similar forward purchase of trader Z, these three contracts could be settled by a transaction between X and Z.

Ringing works most efficiently when all possible counterparties for contract settlement are present in the same location. It was therefore not until the *rescontre* meetings, with a high concentration of possible counterparties, reached a high level of development, that traders started to frequently use this settlement method. All traders present at the *rescontre* were willing to settle forward contracts, and, more importantly, all participants owned forward contracts that were due on the same date. The transition from direct to ring settlement went through an intermediate stage: direct settlement of multiple forward contracts. The chain of forward traders, discussed in chapter 3, where the last person in the chain eventually received a fraudulent share, is an example of this settlement method.[10] Each pair of traders in this chain individually negotiated direct settlement. It then turned out that several traders could cancel out their contract with another contract and this made it possible to settle all contracts in a single share transfer.

To sum up, the advantages of ringing over direct settlement were reduction of counterparty risk and transaction costs. Counterparty risk was lower because a trader could settle his contract with a range of other traders; the chance of successful settlement thus became higher, which reduced the risk of non-payment. Ringing also reduced transaction costs because fewer and smaller monetary payments were needed. However, as I have argued in chapter 3, the use of forward contracts also involved a risk that the counterparty would simply walk away. The legal system of the Dutch Republic did not enforce the contracts if they were short sales – which was often the case. By submitting its participants to a private enforcement mechanism, the risk of reneging became lower, but traders remained subject to exogenous risk: in periods when the share price fluctuated heavily, for example, forward buyers could be tempted to renege on their contracts, even though this damaged their reputations. The reputation-based enforcement mechanism was, put differently, not a watertight system.

[10] See infra, page 101.

Traders therefore always had to assess the risk that a possible counterparty would renege. There could be several reasons why a trader could deem the risk of reneging too high to enter into a forward contract. Firstly, high share-price volatility increased the chance of suffering a large loss on a forward contract and hence also increased the chance of reneging. Forward sellers could then become more hesitant to enter into a forward contract. Secondly, a trader could have information that a possible counterparty possessed other high-risk assets that could contaminate the forward contract. And finally, if a possible counterparty did not participate in any of the trading clubs, it was difficult to assess how he valued his reputation and thus also to assess the risk of his reneging.

For theses situations, another derivative could be used: the repo (short for repurchase agreement), in which a trader temporarily pawned his share with a moneylender. A repo was a loan, but it was disguised as a purchase of a share by the moneylender and the repurchase of the share by the borrower at a certain date in the future for a price fixed. The repurchase price was always higher than the purchase price; the difference being the interest due on the loan. The interest was a compensation for the moneylender who held the legal ownership of the share during the term of the contract without being entitled to its economic benefits.

An example will clarify how repos worked. Trader X considered buying a share with a nominal value of *f* 3,000. This share would cost him *f* 15,000 on the exchange, but he could not afford to have that much money locked up in a share. He could then choose to negotiate a repo with trader Y, a wealthy moneylender. Trader X would then pledge his share as security for a loan with Y, for which Y agreed to give him a loan of, say, *f* 12,000. This was the purchase part of the agreement: Y purchased a share of X and paid him *f* 12,000 for it. They also agreed that X would repurchase the share in one year's time for *f* 12,480. Put differently, X would redeem the loan and pay 4% interest. So, a repo was actually a loan on the security of a share.

The Dutch traders called this kind of transaction *belening*[11], derived from the word *lenen*, meaning 'to borrow' or 'to lend'. The contracts used for these transactions did not mention a loan or an interest rate, however; they only mentioned a purchase and a repurchase price of the share, which equaled the principal of the loan and the

[11] Joseph Deutz, for example, kept accounts of *beleende actiën*, shares on which he had granted loans: e.g. SAA, Deutz, inv. nr. 294, fo. 117, 168; inv. nr. 295, fo. 22.

principal plus interest, respectively.[12] The traders' reluctance to call these transactions loans had nothing to do with usury regulations. To be sure, moneylenders generally charged interest rates of between 2.5 and 4% on repos[13], well below the usury limit of 6%.[14] The share traders rather made the *beleningen* look like repurchase agreements because this eased the procedure in case of default on part of the borrower. The share was transferred to the lender's account for the term of the contract and hence he unequivocally received the ownership of the collateral. This was important, because it allowed the moneylender (trader Y) to sell the share on the market if trader X failed to live up to his agreement.

The counterparty risk of a repo was considerably lower than the counterparty risk of a forward. If the borrower were to renege, the lender would lose money only if the share price had sunk under the purchase price, but then he would lose only the difference between the market price and the purchase price. So, in the fictitious example of traders X and Y, trader Y would lose money if X reneged only when the shares traded for less than 400%. The benefits of the active secondary market for VOC shares were substantial when the borrower defaulted: it enabled lenders to quickly and cheaply sell the collateral in case of a default. Moreover, the constantly updated market price kept the lenders informed about the value of the collateral – they could anticipate a possible default.

Clearly, then, traders preferred repos if they had doubts whether the borrower/buyer would live up to his agreements. From the perspective of the borrower/buyer, however, the choice between negotiating a forward or a repo depended on other considerations. Repos were, of course, the only option for traders with insufficient cash to buy a spot or too low a reputation to enter into a forward contract, but they could also offer a solution to traders who were stuck with a share they did not want or could not pay for. If, for example, a forward buyer was unable to find a seller to settle his contract with or to contract a rollover with, he would have to actually accept a share and thus pay the full market value of the share. If he was unable or unwilling to do so, however, he could pledge the share as collateral and use the loan to pay for it. The forward buyer – who now became a borrower in a repo – would only

[12] See for examples of the contracts used: NA, Case files, IIM99 (Machado *vs.* Cappadoce). The contracts used for repos were called *renversaals*, a reversal – a contract, in other words, that specified the repurchase of the share on maturity. The earliest evidence of a *belening* in the form of a purchase and a repurchase dates from 1645: NA, Case files, IIH21 (l'Hermite *vs.* Van Hoorn).
[13] SAA, Deutz, inv. nrs. 291-5.
[14] Cloppenburch, *Christelijcke onderwijsinge van woecker*, 21.

have to pay the amount not covered by the loan he received on the collateral.[15] The forward seller was often unable to act as moneylender, but the sources clearly show that there were a number of wealthy merchants in Amsterdam who were willing to facilitate this kind of transactions, for it provided them a low-risk investment opportunity. They thus contributed to the functioning of the forward market.[16]

There were also traders, however, who were offered a choice to enter into either a forward or a repo. These transactions had a similar outcome for the borrower/buyer: both forwards and repos separated the economic and legal ownership of a share for a certain period of time. The economic owner (the forward buyer or the borrower in a repo transaction) ran the risk of any share-price movements during the term of the contract and was entitled to any intermediate dividends. He had not (fully) paid for the share, however, and therefore paid the legal owner a fee in recompense for the economic ownership – the forward premium in a forward transaction and the interest over the loan in a repo. Figure 4.1 presents both transactions from the buyer/borrower's perspective in diagram form. The left sides of these diagrams show the actions taken by the buyer/borrower when he entered into the forward/repo. The right sides show how both kinds of transactions were settled.

An example from the correspondence of Jeronimus Velters, a wealthy Amsterdam merchant, shows that he was well aware of the similarities between these types of transactions. When he wrote his business partner Pierre Macaré in Middelburg, in the

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[15] An *insinuatie* of Luis Gonsales d'Andrada reveals this procedure. He had sold a forward contract to Vincent van Bronckhorst on 20 August 1688. According to this contract, Van Bronckhorst would buy a *f*6,000 share on 1 September at 502%. However, during the eleven-day term of this contract, the VOC share price fell considerably. The contractors did not come to a settlement agreement until 6 November, when Van Bronkhorst pledged the share as collateral. He got a six-month loan (with a yearly interest rate of 3.5%) of 400% of the share's nominal value from Gonsales d'Andrada. This means that he had to pay *f*6,120 (502% - 400% of *f*6,000) immediately; the remaining sum (*f*24,000) was postponed until a later date. Gonsales d'Andrada served an *insinuatie* upon Van Bronckhorst, because he had failed to pay the *f*6,120: *insinuatie* 14 December 1688, SAA, Notaries, inv. nr. 4136, fo. 468.
Jeronimus Velters explained to his correspondent Pierre Macaré that he used this strategy to postpone payment on a forward contract that had resulted in a loss: Velters to Macaré, 25 September 1676, SAA, Velters, inv. nr. 2, fo. 514.

[16] An example may clarify how this worked: on 11 August 1681, Reijnier Lieftingh arranged a repo with Joseph Deutz. Lieftingh borrowed *f*10,000 on a *f*3,000 share; the loan had a three-month term and Deutz charged 3% interest. Lieftingh had bought the share from Willem Kerckrinck and sold it, three months later, to Martinus Alewijn. During this period, Lieftingh held the economic ownership of the share, but it never passed through his account in the ledger of the VOC; put another way, he never legally owned the share. The share was directly transferred from Kerckrinck to Deutz and from Deutz to Alewijn. Furthermore, Deutz paid out the principal (*f*10,000) to Kerckrinck and received it back from Alewijn. Lieftingh, for his part, paid the surplus money to Kerckrink, was liable for the interest payment to Deutz and received surplus money from Alewijn. To sum up, Lieftingh used Deutz' liquidity to bridge the time between his transactions with Kerckrinck and Alewijn. In return for his services, Deutz received the interest payment. NA, VOC, 7072. SAA, Deutz, inv. nr. 295, fo. 22 and 76.

province of Zeeland, that he had bought a forward on his account on 21 October 1676, he explained to him that he had also considered contracting a repo instead. The forward had a share with a nominal value of *f* 6,000 as underlying asset and was to be delivered on December 1 at 456%. If he had contracted the repo, he would have pledged a *f* 6,000 share as collateral, but he had calculated that a forward contract was cheaper than a loan bearing an interest of 4% or even 3.5%, all the more so since lenders would only be willing to grant loans of at most 366 2/3% of the nominal value of the security.[17] Unfortunately, I do not know the price at which spots were traded on October 21, but two weeks earlier, on October 9, the spot price had been 453.75%.[18] Hence, the maximum size of a loan granted on a share pledged as collateral was slightly over 80% of the share's market value. Hereafter, I will assume that the share price was 454% on the contract date; the annualized forward premium in the forward contract would then have been 4%, which is plausible for a wealthy and reputable trader such as Jeronimus Velters.

Table 4.1 adds some figures to Velters' assessment of these transactions.

Forward - 40 day term - underlying asset f6,000			
Spot price	Forward price	Total cost (*f*)	
454	456	120	
Loan - 40 day term - share with nominal value f6,000 as security			
Interest (%)	Principal (*f*)	Principal + interest (*f*)	Total cost (*f*)
3.50	22000.00	22082.87	82.87
4.00	22000.00	22094.50	94.50
Extra loan - 40 day term - market value share minus costs f22,000 loan			
Interest (%)	Principal (*f*)	Interest cost to break even (*f*)	Interest rate (%)
3.50	5240.00	37.13	6.67
4.00	5240.00	25.50	4.54

Table 4.1 Estimated costs of Jeronimus Velters' forward and repo transactions
Please note that for these calculations, I have used a spot price of 454% for October 21.

The total costs of the forward contract amounted to *f* 135 (2.25% · *f* 6,000). If, however, Velters chose to take out a loan and pledge the *f* 6,000 share as security, he would get a loan of at most *f* 22,000 (*f* 6,000 · 3 2/3). The total costs of this loan amounted to either *f* 82.87 or *f* 94.50 – depending on the interest rate. He would

[17] Velters to Macaré, 21 October 1676, SAA, Velters, inv nr 2. Interestingly, only a few months earlier (in June), Velters had been able to contract two loans of 400% of the nominal value of the shares pledges as security with Joseph Deutz: SAA, Deutz, inv. nr. 276, fo. 98. The share price had not dropped in the intervening months, so it remains unclear why Velters now feared that he could only get 366.67%.
[18] Velters to Macaré, 9 October 1676, SAA, Velters, inv nr 2.

come short ƒ5,240 to pay for the share (a ƒ6,000 share cost ƒ27,240 on the market), meaning that he would have had to take out another loan to finance the share purchase. If he could get the additional ƒ5,240 for a yearly interest rate of less than 6.67% or 4.54% (depending on the interest rate of the secured loan), it would be profitable to pledge the share as security for a loan rather than contract a forward transaction.

The same calculation holds if Velters had enough spare money to finance the ƒ5,240 himself. This changes the reasoning behind the calculation, though, for he now had to consider whether it was more profitable to take out a loan on collateral and have less liquid money at his disposal, or to contract the more expensive forward deal. The forward transaction would become the best option if Velters could get a rate of return of at least 6.67% or 4.54% (again depending on the interest rate of the loan on collateral option) on the ƒ5,240 he did not have to lock up in the repo.

Velters preferred the forward. As he was a very wealthy merchant, he probably had sufficient cash at hand to finance the share himself and, therefore, the choice he made was that he could allocate the ƒ5,240 in a more profitable way than to lock it up in the share used as security; i.e. he could invest it at more than 4.54%. So far, however, I have omitted some factors that also came into play. The transaction costs for a loan secured on stock were higher than for a forward contract. The brokerage – which, of course, had to be paid only if the traders used a broker's services – was the same for both transactions, but the share that was pledged as collateral had to be transferred at the East India house twice. Moreover, four bank transfers were needed to take out and eventually redeem the two loans. The fees for these transactions were relatively small, but added together and taking into account that the time to perform all these actions was costly for a busy merchant like Velters, they probably persuaded him to choose for the forward.

Velters was probably always in a position to choose between competitively priced forwards and repos – the chance that he would renege on a forward was relatively small. A small adjustment to the figures in the example shows what happened if a certain trader had a slightly lower reputation. Forward sellers would then charge a higher forward premium as a compensation for the increased risk of reneging. If an extra 0.5 percentage point was added to the forward premium (the forward price in the example would then have gone up to 456.5%), the secured loan would have become the cheaper option as long as the borrower could find the extra financing at maximum interest rate of 12.35% (instead of 6.67% if the forward price was 456%) –

which cannot have been difficult on the Amsterdam money market of the second half of the seventeenth century. A small increase in forward premium thus already tipped the scale towards a repo.

Comparing the Velters example from 1676 to two transactions dating from August 1671 reveals how the markets for forwards and repos reacted during periods of large price fluctuations – more specifically the crash of 1672. On 1 August 1671, Abraham Salvador was granted a six-month loan of 93% of the market value of the *f*3,000 share he pledged as collateral. The interest rate of this loan was 3%.[19] Clearly, this loan was a better deal than the one in the Velters example: Salvador received more money on his collateral and he paid a lower interest rate. A fortnight later, on 15 August 1671, Sebastiaen Cotinho bought a forward with an underlying asset of *f*3,000 and a term of 3.5 months. He paid 538%, while the spot price was 532.5%.[20] Hence, the cost of carry on this contract was 3.5% – again a lower rate than in the Velters example.

These transactions were not as competitively priced as those offered to Velters. The total costs of Cotinho's forward amounted to *f*165, or *f*282.86 for a term of six months. Salvador's interest due on his loan was *f*220.36, which means that he had to be able to finance the *f*1,175, the money he came short to buy the collateral[21], for less than *f*62.50 for this option to be cheaper. Hence, he had to get a loan with a yearly interest rate of less than 10.1%, which would probably have been no problem on the Amsterdam money market.

The loan secured on stock was seemingly the cheaper option. This is not surprising; it had to be better priced to be competitive with forward contracts – in 1671, there was, as yet, hardly any restraint on contracting forward transactions. The share price fluctuated within its normal boundaries, the *rescontre* system functioned well and there was no reason to fear that forward buyers would not live up to their agreements. Hence, share traders preferred forward contracts to repos; they assessed the risks involved in both transactions to be similar, but the transaction costs of a forward were lower. At the same time, however, there was a lot of money available among the rich inhabitants of Amsterdam. These rich persons were willing to invest in low-risk repo

[19] *Insinuatie* 5 February 1672, SAA, Notaries, inv. nr. 2238.
[20] *Insinuatie* 10 February 1672, SAA, Notaries, inv. nr. 2238.
[21] A spot cost *f*15,975; Salvador was granted a loan of *f*14,800.

transactions, but for the repos to be competitive with forward contracts, they had to charge low interest rates.

The price crash of 1672 changed the situation on the derivatives market. As I have shown in chapter 3, the large price drop (from 560 in July 1671 to 290 in July 1672) induced a number of traders to renege on their forward contracts.[22] These traders now considered the losses they were about to suffer on their contracts too large to offset an undamaged reputation. The impact on the derivatives market was large. Since many traders held balanced portfolios[23], a single reneging caused an uncovered position in his counterparty's portfolio, which could force him to also renege on one of his contracts. The price crash thus brought the market to a standstill. Jeronimus Velters wrote on 29 November 1672 that there was hardly any trading activity[24]; he was probably referring to the forward market, for the transfer register of the Amsterdam chamber of the VOC does not show a trough in the number of share transfers around that date (see Figure 2.4 on page 79).

Consequently, traders became hesitant to sell forward contracts unless they had near absolute certainty that the counterparty would live up to his agreements. Repos were, of course, not immune to the price fall either. In June 1672, for example, Bartholomeus Rodrigues Hendriques was not able to redeem his loan of *f* 10,500 secured on a share with a nominal value of *f* 3,000. The Court of Aldermen had permitted the moneylender, Hendrick Staets, who, incidentally, was a sworn broker, to sell the collateral on the market. Staets made a final attempt to persuade Rodrigues Hendriques to repay the loan through a notarial *insinuatie*, but this was to no avail.[25] Staets lost the difference between the loan and the market value of the share (around *f* 1,500), but Staets could lay a claim for this amount against Rodrigues Hendriques' property – this was an important advantage of repos over forward transactions; forwards were simply null and void if they concerned short sales and hence the sellers had no right to lay a claim to the counterparty's property.

Staets was lucky that he had granted Rodrigues Hendriques a loan of only 350% of the nominal value of the collateral. The price fluctuations that started in the autumn of 1671 had probably made him more cautious when he granted a loan. This immediately reveals the main advantage of repos over forward contracts: the lending

[22] See page 113.
[23] See page 138.
[24] Velters to Fletcher, 29 November 1672, SAA, Velters, inv. nr. 1, fo. 292.
[25] *Insinuatie* 20 June 1672, SAA, Notaries, inv. nr. 2239, fo. 503.

party in a repo could adjust the risk of the transaction to the circumstances by adjusting the size of the loan granted to the borrower – a 'haircut' in modern parlance. The smaller the loan granted, the higher became the chance that the lender would be able to fully recover the principal on the market in case the borrower defaulted. Similar risk adjustments were impossible with forward contracts. Forward sellers could ask a higher forward premium to cover higher risk, but this would above all create an extra incentive for the counterparty to default on the contract.

Figure 4.2 shows the size of the loans granted on shares pledged as collateral or the period 1649-88.[26] The size of the loans is expressed as a percentage of the market value of the share on the contract date. The size of the loans varied from 63% (December 1681) to 103% (October 1671) of the market value of the collateral. The graph clearly shows that the average loan was higher in the early 1650s than in the later decades of the seventeenth century. Changing market conditions explain a large part of this variation. The early 1650s were the final years of a period of rising share prices that had lasted for more than two decades. There was as yet no reason to believe that the share price would fall in the near future. In the following decades, however, the First and Second Anglo-Dutch Wars had a large impact on the share price. The increased price volatility led to a higher risk of default and lenders adjusted their loans accordingly. The peak of 1671 depicts that year's sense of optimism: a record high dividend payment and good news from the East Indies boosted the share price and moneylenders were willing to lend almost the full value of the collateral – and on one occasion even slightly more. The price volatility in 1672 brought the size of the loans down to about 70%. In fact, the 1672 price crash disrupted the market even more than this graph shows. Moneylender Jan Witheyn, for example, was willing to roll over a repo with Jeronimo and Manuel Gomes Pessoa in June 1672, but not only did he change the conditions of the loan, he also demanded extra security in the form of a government bond.[27]

Market conditions cannot explain the fluctuations after 1672, however. These must be attributed to circumstances related to the individuals involved in these repos.

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[26] Very few data are available for the period before 1649 – the year in which Elisabeth Coymans started facilitating repo transactions. Antoni Thijs was granted a loan of 97% of the market value of his share in 1618: BT, inv. nr. 113, fo. 47.

[27] Rollover, 15 June 1672, SAA, Notaries, inv. nr. 2905, fo. 167. Originally, on 26 November 1671, Witheyn had lent *f* 12,000 on the security of a *f* 3,000 VOC share. The term of this repo was 6 months and Witheyn charged a yearly interest rate of 3.75%. In the renewed contract, Witheyn only granted *f* 10,000 at 4% interest. Furthermore, he demanded a *f* 3,200 bond of the States of Holland as extra security.

The low values for April and October 1679, as well as those for May and December 1681 come from the books of Jacob Athias and Manuel Levy Duarte, who were the borrowers in these transactions.[28] The other data from the 1670s and 1680s stem from the records of Joseph Deutz, a very wealthy merchant who acted as moneylender in all these transactions.[29] The counterparties to the repos of Athias and Levy Duarte apparently had their doubts about the creditworthiness of these merchants.[30] Deutz, on the contrary, was willing to grant his counterparties larger loans. He probably selected his counterparties for their creditworthiness.

It is interesting to note, finally, that there was little variation in interest rates charged on repo contracts. Elisabeth Coymans charged yearly interest rates between 3.75 and 4% in the 1650s[31]; during the following decade, Louis Trip charged 3%[32] and Joseph Deutz lent money secured on stock shortly after the 1672 price crash at 3.5%.[33] Clearly, risk management was carried out through adjusting the size of the loan rather than the interest rate.

The collateral/loan ratio, or size of the haircut, could function as a risk-management technique only if moneylenders could easily and quickly sell the collateral on the market if the borrower defaulted. Moneylenders would be less inclined to participate in this type of transaction if lengthy court proceedings were required to get permission for the conversion of collateral into real money, since this would considerably increase the transaction risk – the time it took to get permission increased the chance of large fluctuations in the value of the collateral. The earliest example I have found of a repo transaction, which dates from June 1618, shows that the share was transferred to the lender's account in the capital books of the VOC for the duration of the loan.[34] An official regulation on repos, first proclaimed in 1623[35], stated that this was not the right procedure; collateralized shares should be transferred to the time account of the moneylender.

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[28] SAA, PIG, inv. nr. 858, fo. 89, 214. They contracted some of these repos on the accounts of Salvador de Palacios, Pieter Hunthum, Luis da Costa and Luis Alvares. There does not seem to be a difference between the size of the loans they contracted on their own account and those on the accounts of third parties.
[29] SAA, Deutz, inv. nr. 293-5.
[30] Incidentally, their fears proved to be correct. Attestations dating from 1698 give evidence that Jacob Athias was hiding from his creditors: SAA, Notaries, inv. nr. 6004, fo. 361, 383.
[31] SAA, Deutz, inv. nr. 276, fo. 220.
[32] E.g. SAA, Merchants' accounts, inv. nr. 50, 2 April 1663.
[33] SAA, Deutz, inv. nr. 293, fo. 113.
[34] BT, inv. nr. 113, fo. 47. Anthoni Thijs received a loan of almost 94% of the nominal value of the collateralized share. He paid 5% interest for the four-month loan.
[35] Placard 3 June 1623: Cau, *Groot placaet-boeck* I, 555-9.

These time accounts, however, were hardly ever used[36] – understandably, because in case of default, the moneylender would have had to officially seize the share before he could freely dispose of it. Permission to seize a share that was registered on a time account could be obtained from the Court of Aldermen, but this was a time-consuming process; the moneylender would need to start litigation, claiming the right to legally dispose of the share. If he won the case, he would have to ask the court to execute the sentence by seizing the share.[37] However, if the defendant appealed the court's permission to seize the share, the moneylender would still not be able to sell the share on the market. Hence, moneylenders required their counterparties in repo transactions to transfer the share that was used to secure a loan to their 'normal' accounts in the ledger of the VOC. The bookkeeper of the VOC did not oppose this procedure.[38] Incidentally, he could not easily distinguish repos from other transactions, because the traders disguised repos as standard purchases and repurchases.

When the collateral was stored on a normal account, a moneylender could more easily dispose of the share in case of default. There were two different procedures. Moneylenders could ask official permission from the Court of Aldermen to sell the share by handing in a request. The Aldermen would then approve this request by way of a marginal note; this was a mere formality if the moneylender could prove that the borrower had not redeemed the principal – no court case was started.[39] This also indicates that the Aldermen implicitly approved the way traders customarily traded repos. Finally, contractors of a repo transaction could add a clause to the contract that stated that the moneylender was allowed to sell the collateral on the market after the end of the contract term without further judicial procedure.[40] Before taking any steps,

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[36] In the year 1688, for example, the VOC bookkeeper registered only two transfers from/to a time account: NA, VOC, 7072, fo. 181 and 183.

[37] For the procedure of executing sentences: Le Bailly, *Hof van Holland*, 51. The bookkeeper of the VOC made notes of seizures in the margin of shareholders' accounts. He also added a reference to the date of the sentence of the Court of Aldermen and, from 1684 onwards, a reference to the VOC register of seized shares. This register, in which all documents requesting the seizure of a share were collected, allows for a quick count of the number of seizures. The Amsterdam bookkeeper administered two to seven seizures per year between 1684 and the end of the seventeenth century. Most seizures concerned conflicts over estates and the size of the seizures was generally small (seized shares with nominal values of between *f* 100 and *f* 500), with the exception of two claimants to Van Beuningen's shares (1688), who seized *f* 6,000 each: NA, VOC, inv. nr. 7122.

[38] Joseph Deutz distinguished in his private administration between shares that were his own investment and shares he had received as security for loans; these two types of shares were not treated differently on his account in the official VOC ledger.

[39] E.g. *insinuatie* 20 June 1672, SAA, Notaries, inv. nr. 2239, fo. 503. The case file that has survived of the lawsuit Samuel Cotinho *vs.* Vincent van Bronckhorst shows that the local court of Amsterdam responded quickly to such requests: NA, Case files, IIK98.

[40] E.g. *insinuatie* 5 February 1672, SAA, Notaries, inv. nr. 2238, fo. 276.

however, they should always inform their counterparties about the steps they were about to take – preferably through a notarial *insinuatie*.

To summarize, repos mimicked the separation of legal and economic ownership of a share over a certain period of forward transactions. Counterparty risk in a repo was considerably lower, but in exchange for that advantage, traders had to perform at least two share transfers and arrange several payments. The choice between these instruments was thus an assessment of transaction costs and counterparty risk.

It is striking that the traders on the Amsterdam market for corporate equity did not come up with a hybrid transaction – a forward transaction that adapted certain elements of the repo to lower counterparty risk. The most obvious way to lower counterparty risk of a forward transaction would have been through the establishment of margin accounts. The principle of a margin account is that both parties to a contract deposit a certain sum upon concluding the transaction. This sum (the margin) is a form of collateral; it covers a large part of the credit risk of the counterparty. If one of the parties defaults, the other party has recourse to the sum deposited. Dynamic use of a margin account can even provide full coverage of credit risk. An extra clause should then be added to the contract, which states that traders should deposit an extra sum in the event of a certain change in market conditions – e.g. a 10% price change of the underlying security. If, for example, the market price of the underlying security falls 10% during the term of the contract, the buyer – whose incentive to renege becomes larger due to this price change – should deposit an extra sum in the margin account. Similar dynamic margins are always used in modern-day derivatives markets.[41]

This use of margin accounts significantly reduces counterparty risk in forward contracts, but there is no evidence that Amsterdam traders used it in the seventeenth century. I have only found a single example of a forward contract where the seller asked for extra security to reduce the counterparty risk. This contract had a VOC share with a nominal value of *f* 12,000 as underlying asset and was therefore riskier than the more common *f* 3,000 forwards. The parties to the contract were Vincent van Bronckhorst (the seller) and Samuel Cotinho (the buyer). They agreed on 25 June 1683 that the share would be delivered on 1 September of that year at a price of

[41] Today, the exchange organization is often, if not always, the counterparty to derivatives contracts. Each trader holds an account with the exchange and has to update his margin to price changes on a daily basis.

422.625%. The traders added an extra clause to the contract: Cotinho gave Van Bronckhorst a *renversaal* as security for the contract – this *renversaal* was the repurchase part of a repo Continho had entered into. It gave Van Bronckhorst the right to settle Continho's repo in case he defaulted.[42]

This collateral provided some cover for the contract's credit risk. If Cotinho defaulted, which would have been feasible – at least, from an economic point of view – if the VOC shares traded at a price below 422 5/8% on expiry of the forward, Van Bronckhorst could use the *renversaal*. This gave him the right to receive ownership of a *f*6,000 share if he redeemed a loan of *f*22,000 (plus interest), which Susanna de Neufville had granted to Cotinho. This means that Van Bronckhorst would not suffer a loss as long as the share price did not fall below 408 5/8%.[43] It is questionable to what extent this extra security would really reduce credit risk; to be sure, a real incentive for Cotinho to renege would arise only if the share price fell even further. In my opinion, therefore, the strength of the extra clause was merely symbolic; by handing over his repurchase agreement with De Neufville, Cotinho showed that he was committed to complying with the agreement.

Interestingly, there is evidence of the use of margin accounts for the eighteenth century. John Law and Lord Londonderry (born Thomas Pitt, Jr.) used one in 1719 for a one-year forward contract with EIC stock with a nominal value of £100,000 as underlying asset – an incredibly risky contract. Each trader deposited £30,000 and they had to adjust their deposit if a 10% price movement occurred.[44] Data from 1772 indicate that traders from Amsterdam were by that time familiar with the use of margin accounts, although in these instances only the buyer had to deposit a margin.[45]

The seventeenth-century traders might have been wary of using margin accounts because it can lead to moral hazard.[46] A trader could be tempted to enter into a forward transaction with a trader with a bad or unknown reputation because he thinks that the margin account will cover the loss in case of default. This is of course what a margin account is supposed to do, but there is always a possibility that a trader

[42] NA, Case files, inv. nr. IIK98 (Cotinho *vs.* Van Bronckhorst).
[43] Calculation: Van Bronckhorst would make a profit as long as the proceeds from the sale of the collateral would be higher than the loss incurred in the forward contract. The break-even point lies at a market price halfway between the forward price (422 5/8%) and the size of the loan (366 2/3%). However, the collateral had a nominal value of *f*6000, whereas the forward contract involved a share of *f*12000. Hence, the break-even point lies at 422 5/8 – (422 5/8-366 2/3)/4 = 408 5/8%.
[44] Neal, 'The adventures of Lord Londonderry', 12.
[45] SAA, Notaries, inv. nrs. 10600-5. (Thanks to Peter Koudijs.)
[46] Cf. Angelo Riva and Eugene N. White, 'Danger on the exchange: How counterparty risk was managed on the Paris Bourse in the nineteenth century', *NBER working paper* Nr. 15634 (2010).

with a bad reputation will not update the margin according to the agreement. A margin account might, put differently, provide spurious certainty, enticing traders to enter into transactions they would otherwise have deemed too risky. The legal sphere could provide an additional explanation for the absence of margin accounts in seventeenth-century Amsterdam. The main advantage of the use of shares as collateral (in a regular repo) was that the collateral was registered on the lender's account in the capital books of the VOC. The lender thus held legal ownership of the share and could easily dispose of it in case of default. It might have been problematic to give a party to a forward contract – in many cases an illegal contract – legal ownership of the margin in case his counterparty defaulted.

Moreover, a forward transaction would have lost its dynamic character if traders needed to deposit margins for each transaction. And it was of course the dynamics of the forward market that proved to be so alluring to the traders. The stock-jobbers needed a market where they could negotiate many deals in a short period of time for their trading strategy to be profitable. So, to conclude, counterparty risk was manageable on the Amsterdam market for VOC shares, but traders had to give up on the advantages of the forward market (low transaction costs) in exchange for the lower counterparty risk of a repo. They therefore often preferred to face the higher counterparty risk of a forward. The manageability of counterparty risk contributed to the accessibility of the market. It enabled merchants with reputations that were inadequate for the regular forward market to participate in the share trade without necessarily locking up the full market value of a share by holding a positive position in the capital books of the VOC.

Portfolio risk

Portfolio risk is the risk that the share price, and hence the value of the portfolio makes unwanted movements. Portfolio risk falls into a different category of risk than counterparty risk; whereas every trader tries to minimize counterparty risk, while taking care that transaction costs do not get too steep, the level of portfolio risk an individual trader is willing to take on depends on his risk-averseness. Speculators, for example, trade on short-term price movements and they are therefore willing to take a higher short-term portfolio risk. People who regard their investment as a pension scheme, on the other hand, require a long-term positive return on their investment, and do not want to run the risk that the value of their portfolio will be reduced to zero due to

sudden price movements. There are several ways to mitigate or allocate portfolio risk; I will successively discuss how the seventeenth-century share traders used contingency claims and derivative transactions to this end.

Traders could add a contingency clause to their derivatives contracts.[47] A contingency clause is a clause that comes into effect if a certain described event happens; put another way, the clause is contingent on the event described in the clause. The risk allocating effect that contingency clauses could have becomes clear in the following example. In the fall of 1618, Anthoni Thijs and Abraham Govertsz. van de Graef contracted a forward transaction that was due on 1 January 1619. Earlier that year, five VOC ships had safely returned from the East Indies. However, Thijs and Van de Graef had the impression that there might still be still be more ships bound for the Dutch Republic under way, but they were unsure how many. They therefore stipulated that Van de Graef should pay Thijs 158% if two more ships would arrive from the East Indies before the end of the year, 152% if one more ship would arrive and 144% if none. They settled the contract on 2 January 1619; Van de Graef paid 152%, because one more ship had arrived.[48]

This transaction thus brought about the following risk allocation: Thijs was the seller, so he would not suffer a loss if the share price were to fall during the term of the contract. If the share price were to rise as a result of the safe arrival of one or more VOC ships, he would get a fixed profit. Van de Graef, on the other hand, would suffer a loss if the share price were to fall and he would profit from the arrival of additional ships only to the extent that this did not accrue to Thijs. Moreover, he would suffer a loss if the share price did not react as positively to the arrival as laid down in the contingency clause. So Thijs knew exactly how much he would get paid on January 1; he had covered his risk. Van de Graef, on the other hand, was willing to take on these risks. He might have been rewarded through a low forward premium, but the sources do not allow for a reconstruction of the premium. It is also possible that Van de Graef was willing to take on the risk because he had a more positive expectation on the share price reaction to the arrival of ships.

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[47] There were standard forms available for derivatives contracts (in printed form from about 1630 onwards, but before that time traders already used a standard formulation for their handwritten contracts), but traders could always tweak the transaction by adding extra clauses at the bottom of the contract.

[48] BT, inv. nr 113, fo. 48. The last ship, called Goede Fortuijn, arrived in Zeeland on 15 November 1618: DAS. Incidentally, both traders proved to have been very good at assessing how the market would react to the arrival of ships: on 27 December, Thijs paid the exact same 152% for a spot transaction.

Hubertus Pollius and Anthony Alvares Machado entered into a similar transaction on 8 August 1678. They agreed that Alvares Machado would buy a share (nominal value *f* 3,000, price 405%) if peace were to be concluded in the coming month. Otherwise, the contract would become null and void. So, in this particular transaction, neither party ran a risk if the peace negotiations failed. If, however, they succeeded, Pollius knew for sure that he would get 405%. Alvares Machado would suffer the loss or get the profit if the price were lower or higher in a month's time. Again, this contract is partly a bet (by Alvares Machado) and partly a way to control the impact of political circumstances on the value of a share portfolio. Pollius was willing to forgo the chance of a very high return for the certainty of getting 405% were peace to be concluded.[49]

Traders also used the derivatives market for commodities to hedge the price risk of the VOC shares in their portfolios. For an effective hedge, the price of these commodities should go up if the price of the VOC shares were to go down and vice versa. The goods that were brought to the Dutch Republic by the VOC satisfied this requirement to an extent that made hedging feasible. The share price reacted positively on large return fleets, but large ladings of spices and other goods from the East Indies of course also saturated the markets for these commodities. The general trend was thus that the market price for spices went down when the share price went up. If, however, part of the fleet was lost at sea, the share price decreased whereas spices became scarcer on the European markets and their price increased. A good way to hedge against price risk was thus to invest in pepper or other spices when these were abundantly available. The goods brought over from the East Indies were not perishable, so they could be stored in a warehouse until the price went up.

Jeronimus Velters did so in the fall of 1676 when the pepper price was very low. He bought pepper on the Amsterdam and Hoorn markets for Pierre Macaré and himself and immediately pawned it. He received 4.5% loans secured on the pepper;

[49] The contractors later disagreed on the interpretation of the contingency clause. Peace with France was signed on 11 August – only three days after they had drawn up the contract, but Alvares Machado was not willing to receive the share, stating that the contract was valid only if a general peace was concluded, whereas the Peace of Nijmegen solely concerned France and the Dutch Republic. Pollius then sold the share to another trader. A year later, however, when VOC shares traded at 410-3%, Alvares Machado changed his mind and he started a civil case against Pollius to force him to deliver the share. Both the Amsterdam court and the Court of Holland dismissed Machado's claim. Anthony Alvares Machado *vs.* Engelbert de Geyselaar (guardian to Pollius' heirs), 25 March 1681, HvH, inv. nr. 816, 1681-55.

the storage costs were included in this interest rate.[50] Based solely on the letters to Macaré in which Velters wrote that he was going to buy pepper, it could seem as if Velters had simply speculated on a price rise of pepper – buying low and hoping to sell high. This was not the case, however; Velters was actually hedging the price risk of his shares, since his entire correspondence with Macaré was focused on trading shares and other financial transactions (insurance, bills of exchange). The sole purpose of their correspondence was to make better financial deals by using each other's business networks. This example of buying and storing commodities must thus also be seen in the context of their financial dealings.

The aforementioned examples are chance findings in the sources; it is unclear how often traders used these risk-mitigating strategies. The very frequently traded share derivatives were also fit for risk-reducing trading strategies, however. Both forwards and options could be used to mitigate the risk of unwanted price fluctuations. Below I will discuss how this worked and to what extent the traders used share derivatives to manage and control the risk of their portfolios.

Forward short sales, to begin with, are often used for making a hedge. The possibilities for this trading strategy were rather limited on the seventeenth-century forward market, however, because VOC stock was the only asset that was regularly traded and that could thus be sold short. Traders could therefore not, for example, use forward options to hedge against systematic risk – the class of risk associated with market returns (i.e. of the market as a whole, not of an individual asset). This is a category of risk that cannot be reduced by portfolio diversification. If, for example, the government of a specific country is replaced as a result of a coup d'état, this will affect the return of all stocks traded on the market in that country. Some stocks will react more heavily to this event than others, but the price reactions will be positively correlated. A portfolio that consists of only long positions in different stocks will therefore always be affected by systematic risk. Short-selling, however, can protect against this type of risk. If a long position in stock X is combined with a short position in the market with the same value, the systematic component of the return on stock X is reduced to zero. A positive systematic return will then still result in a positive return on stock X, but this will be fully offset by the negative return on the short position in the market. So, what is left is the unsystematic, or stock-specific, risk and return of stock X. On the

[50] Velters to Macaré, 25 September 1676, SAA, Velters, inv. nr. 2, fo. 514; 6 November 1676, SAA, Velters, inv. nr. 3., fo. 5.

Amsterdam financial market of the seventeenth century, however, it was not possible to take a short position in the market as a whole, so traders could not hedge against this type of risk. A combination of a long VOC position and a short WIC position would have come the closest to cancelling out systematic risk, but the trade in WIC shares was too irregular to make this feasible and I have not found any evidence in the sources that traders used this strategy.

The Amsterdam share traders could also use forward short positions in the VOC to limit the risk of their long position in the same VOC. This technique is very simple. A long position limits downward risk (the value of a long position can go only to zero), but gives unlimited upward potential. A short position, on the other hand, has unlimited downward risk (there is no limit to a rise of the share price, hence there is no limit to the loss on a short position), whereas upward potential is limited to the point where the asset becomes worthless. Hence, a combination of a long and a short position fixes the loss or profit on the portfolio. This is exactly what the forward traders on the market for VOC shares did; they always tried to net out their positions by making opposite contracts. The ledger containing the trades of Jacob Athias and Manuel Levy Duarte in trading clubs during the 1680s clearly shows this; they traded a very high number of forward contracts, but always made sure that their net position in the market was (close to) zero.[51] A flat position not only yielded the best settlement possibilities, it also limited the portfolio's profit or loss to the difference between the average prices of its long and short positions. The portfolio was not exposed to additional share-price risk.

Option contracts provided more sophisticated hedging possibilities. An option is the right to buy (call option*) or sell (put option*) a share with a certain nominal value at a certain price on a certain date in the future. The holder of the option has the right to exercise the option, but he can also choose not to do so – he will exercise it if the option is *in the money*, meaning that the market price makes it profitable to exercise the option. The main difference between forward and option contracts is that the holder of an option has the right to exercise it, whereas the buyer of a forward is obliged to buy the underlying asset on expiry or settle the contract in some other way. Options can therefore be seen as an insurance against a certain share-price movement. A put option, for example, guarantees the buyer that he can sell the underlying asset at a certain price at a future date. He is thus insured against a reduction in value

[51] SAA, PIG, inv. nr. 687-8.

of the underlying asset from the point where the option is *at the money*. Of course, insurance does not come for free; the buyer of an option has to pay an option premium that is similar to an insurance premium.

So, put another way, the holder of a forward contract holds the economic ownership of the underlying asset, postponing payment until the contract's expiry date, whereas the holder of an option contract holds an insurance against certain price movements. This makes an option a more complicated instrument and it is therefore also much more complicated to assess the price of an option. The price of a forward can be assessed by taking the spot price at the contract date, to which a cost-to-carry is added. The size of the cost-to-carry is dependent on the contract's term in relation to the prevailing interest rate and on the risk of default. In the case of an option contract, however, the size of the premium is dependent on more factors. It is, of course, to a large extent determined by the nominal value of the underlying asset, the length of time to expiry and the relationship between the market price and the strike price of the option. Because of the time value of money, the premium increases as the term lengthens. It is harder to price the relationship between the market price and the strike price, however. The option premium increases as the chance that the option will be *in the money* on expiry becomes greater – the seller of the option demands a higher compensation for the greater chance that he will incur a loss if the option is exercised. This component of the option premium is thus dependent on the variation of the share price. The seventeenth-century options traders were definitely aware of this relationship, but they did not have the mathematical knowledge to perform the calculations needed. To be sure, it was not until the 1970s that the Black-Scholes model was developed, presenting a method for option valuation.[52]

However, even the Black-Scholes model does not capture all factors influencing the size of the option premium. Most importantly, it does not take the risk preferences of the options traders into account, but exactly these different risk preferences are the source of all trading activity in options. The buyer of an option always considers whether the coverage for a certain price risk offsets the option premium. The trader who writes the option, on the other hand, receives the premium, but has to consider whether it offsets the extra risk exposure. They can come to an agreement only if they value risk differently.

[52] Murphy, 'Trading options', 20-1.

The sources give few clues regarding how the seventeenth-century options traders assessed the size of the option premium. The available data on option contracts give the impression that there was something like a market price for options with a similar exercise date – although I have never seen any quotations of option prices in share-traders' correspondence. Two put options, one between Jacob da Costa Athias and Antonio do Porto and the other between Manuel Mendes Flores and Josep Francees, give evidence for this view. The former option was contracted on 22 October 1671 and the latter one day later. Both had the same underlying asset, strike price and exercise date. Da Costa Atias paid a premium of *f* 600 and Mendes Flores *f* 585. This certainly gives the impression that these traders took a market price as a starting point, adjusting it slightly to their personal expectations.[53]

Apart from this observation, it is impossible to find out how the traders priced their option premium. There are simply too many factors at play and, what is more, the traders used several types of option contracts. For example, both what are nowadays called American-style and European-style options were used.[54] The difference between these two styles is that European options can be exercised only upon expiry of the contract, whereas the holder of an American-style option has the right to exercise it on or before the date mentioned in the contract. It makes a big difference for the size of the premium whether it is an American or a European option. On 28 February 1680, for example, Joseph Deutz bought four call options, paying a premium of *f* 510,55. The total underlying asset of these options was *f* 12,000. The strike price in these contracts was 410% and the exercise date 1 May 1680. The original contracts have not survived, but these must have been European options, because the VOC spot price at the contract date was around 420%. If these had been American options, the contracts would have had an intrinsic value of *f* 1,200 on the contract date – Deutz

[53] *Insinuaties* 1 August 1672, SAA, Notaries, inv. nr. 2239, fo. 968, 999.

[54] The exact details of option contracts have survived only in very few instances. The court case Abraham Cappadoce *vs.* Isaack le Boulanger gives evidence of an American-style option: Cappadoce had bought the right to receive a share from Le Boulanger between the contract date (19 October 1689) and 1 January 1690 at 460%. NA, Court of Holland, inv. nr. 853, nr. 1694-31. The option contract between Johannes van Gistelen and Moses Gabay Henriques (1672) that is transcribed in the protocol of notary Lock is also American-style: SAA, Notaries, inv. nr. 2238, fo. 773. The contract (30 August 1688) between Manasse Ababanel and Jacob Poppen, however, reads that Ababanel had the right to sell a *f* 9,000 VOC share to Poppen only upon the contract's exercise date: 1 January 1689 ('op den eersten january 1689 eerstcomende dein dagh alleen'). SAA, Notaries, inv. nr. 4135, fo. 533-4. The options that were traded on the London market in the late seventeenth century were American-style: Murphy, 'Trading options', 12 (in footnote).

could have immediately exercised them and he would then have made a profit of almost *f*700.[55]

There were more factors that complicated the valuation. The seller could, for instance, insert a penalty clause for non-compliance in the contract. This meant that he could reduce his downward risk stemming from writing the option. On 6 October 1671, for example, Bartholomeus Rodrigues Enriques sold a put option to Michiel Rodrigues Nunes. Rodrigues Nunes paid *f*78.75 for the right to deliver Rodrigues Enriques a share of *f*3000 at a price of 530% on or before 1 August 1672. The contractors added a penalty clause that Rodrigues Enriques should pay 10% of the nominal value of the underlying asset (*f*300) to Rodrigues Nunes if he refused to accept the share.[56] Hence, if the share price dropped to 517 3/8% or lower, the seller would choose not to accept the share, but rather pay the fine. There are also examples of contracts with a 20%-penalty clause. Unsurprisingly, the premium paid for these contracts was higher – these contracts gave the buyers a profit potential of *f*600 instead of *f*300.[57]

Option contracts could be used for both risk-mitigating and speculative purposes. The speculative use of options works as follows. A trader who believes that the share price will increase can hold a positive position in the stock, but he can also buy a call option or short a put option.[58] The option transactions allow him to get the profits of a larger number of shares for a relatively small amount of money; he does not have to actually buy the shares, but he can still gain from the expected price increase. A trader who believes that the share price will decrease, however, can short the stock, buy a put option or write a call option.[59] The available data on the use of option contracts shows that this speculative use was by far the one most employed by the share

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[55] SAA, Deutz, inv. nr. 287.

[56] *Insinuatie* 1 August 1672, SAA, Notaries, inv. nr. 2239, fo. 993. This procedure could be compared to the very common early-modern Dutch practice of *rouwkoop* ('grieving money'): a fee to cancel a contract. This was basically a fine for not behaving honorably; by paying it, a trader restored the honorable relations: Goldgar, *Tulipmania*, 210.

[57] E.g. *insinuaties* 1 August 1672, SAA, Notaries, inv. nr. 2239, fo. 995, 997. The net profit of the buyer in case the seller did not live up to his agreements did, of course, not equal the penalty payment. To calculate the net profit, the option premium should be subtracted from the penalty payment.

[58] The difference between buying a call and writing a put is that the buyer of the call has unlimited profit potential, whereas his loss is limited to the option premium. The writer of a put, on the other hand, gains the option premium if the share price is above the strike price on the exercise date, whereas his potential loss amounts to the total value of the underlying asset.

[59] The buyer of a put option gains as soon as the share price falls below the strike price to an extent that it offsets the option premium. The profit potential is limited to the value of the underlying asset; the loss to the option premium paid. The writer of a call gains the option premium if the share price falls below the strike price. He loses – and the potential loss is unlimited – as soon as a share price increase offsets the option premium he received.

traders in Amsterdam. Louis Trip, for example, bought two call options for shares with a total nominal value of *f* 42,000 on 16 January 1660.[60] The strike price of these options was 400% and they expired on 16 April 1660. They were just *out of the money* on the contract date. Trip had a large long position in the VOC at that time: he owned share capital with a nominal value of *f* 53,000.[61] The combination of his long position and the large long call indicates that he was speculating heavily on a share-price increase.

Unfortunately, Trip did not systematically register the details of his option contracts – for the most part, he noted in his journal only the premium he paid or received, without specifying put or a call, strike price or underlying asset – so it is not possible to analyze whether he also used options for risk-hedging purposes.[62] Joseph Deutz, however, kept his accounts more meticulously. He also used options for purely speculative purposes. On 12 March 1675, for example, when Deutz held a long position in the VOC with a nominal value of *f* 36,000, he bought five call options. These options all had a *f* 3,000 VOC share as underlying asset, a strike price of 450% and expiry date May 1[63], while the spot price on the contract date was 447%. Deutz was clearly speculating that the share price would increase in the next few months; he enlarged his long position's exposure to price fluctuations with call options for VOC shares with a nominal value of *f* 15,000.

Deutz also used options for other investment strategies, however. On 4 May 1678, for example, he wrote a call option with a *f* 3,000 VOC share as underlying asset, a strike price of 340% and expiry date August 1. He received a premium of *f* 360 for this call.[64] At this date, his long position in the VOC amounted to a nominal value of *f* 8,090 and the spot price was 319%.[65] This combination of a long position and a short *out of the money* call option, called a covered call, indicates that Deutz was hedging against short-term fluctuations in the value of part of his portfolio. With this covered

[60] Journal entry, 16 January 1660, SAA, Merchants' accounts, inv. nr. 50. The counterparties to these contracts were Aron Gabay Pharo and Nicolaes van Bambeeck. Sworn broker Hendrick van Meyert participated for 50% in the option with Gabay Pharo (underlying asset *f* 30,000).
[61] Journal entry, 24 December 1659, SAA, Merchants' accounts, inv. nr. 50.
[62] The same goes for Jacob Athias and Manuel Levy Duarte; they traded options on the accounts of Salvador de Palacios and Olympe Mancine, the Countess of Soissons, but never registered all details of their options. SAA, PIG, inv. nr. 858, fo. 113, 150, 202, 216 and 298.
[63] SAA, Deutz, inv. nr. 286. The counterparties to these contracts were Rodrigo Dias Henriques, Manuel Mendes Flores, Manuel Anthonio Rodrigues, Samuel Elisa Abrabanel and Joseph Gonsalves de Assevedo. Deutz paid a *f* 180 premium on three contracts and *f* 165 on the remaining two contracts.
[64] SAA, Deutz, inv. nr. 286. The counterparty to this contract was Guilliam Venturyn.
[65] SAA, Deutz, inv. nr. 294, fo. 155.

call, Deutz received an option premium and he still profited from a share-price increase up until the point where the market price equaled the strike price. A further increase in the share price would accrue to the buyer of the option. If the share price were to decrease, however, the option premium would cover part of the loss on the long position in Deutz' portfolio.

Deutz performed a different type of hedge in May/June 1680, when his long position in the VOC amounted to a nominal value of *f*15,000.[66] On May 8, he bought a call option with a *f*12,000 VOC share as underlying asset, a strike price of 430% and exercise date of August 1. The premium paid for this option was *f*840. So far, it seems that Deutz leveraged his portfolio, speculating on a share-price increase. One month later, however, on June 6, he also bought a put option. This option had a *f*18,000 VOC share as underlying asset, a strike price of 415% and exercise date of August 1. Deutz paid a *f*495 premium for this put.[67] Combined, these two options formed a straddle*. Deutz obviously expected a big price movement, and he wanted to profit from it, but he was unsure in which direction the price would go. Using these option transactions, he safeguarded his portfolio against too big a price decrease, whilst at the same time enabling him to fully profit from a possible price increase.

Straddles could also be bought in a single transaction. Raphael Duarte, for example, bought one from Josep Francees on 26 October 1671. He paid Francees *f*1,200 for the right to either receive or deliver a share of *f*3,000 at a price of 500% from/to Francees on or before 1 August 1672.[68] Duarte could always exercise this option, unless the price were exactly 500%, in which case the option would be worthless. He would make a profit if the share price were to drop under 460 or rise over 540. For any share price in between these values, he would be able to partly recover the option premium he had paid in October. Francees, on the other hand, would make a profit as long as the share price did not change too much. Clearly, straddles were the perfect transaction for traders who did not want to be exposed to large downward risks, but who at the same time wanted to benefit from possible price increases. It is not surprising, then, that the premium that had to be paid for these options was rather high.

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[66] SAA, Deutz, inv. nr. 295, fo. 20.
[67] SAA, Deutz, inv. nr. 287. The counterparty to the call was Jan Haen, for the put Egbert de Vrij.
[68] *Insinuatie* 1 August 1672, SAA, Notaries, inv. nr. 2239, p. 962.

To conclude, all financial techniques needed to take hedged positions on the market were available in the second half of the seventeenth century. The extent to which they were actually used for hedging purposes seems to have been limited, however. Joseph Deutz at times certainly used options to protect his portfolio against short-term price fluctuations, but for the most part he used options in a speculative way; to get a larger exposure to price risk rather than to be insured against unwanted price risk. This does not alter the fact that for each option transaction to be concluded, a certain amount of price risk was traded. Each trader that entered into an option transaction had to consider how much risk was involved in the transaction and how much he was willing to pay to transfer the risk or how much he wanted to be paid to take on the risk.

Consequently, as I have mentioned before, the buyer of each option transaction needed to have a different level of risk-averseness than the seller. The sophisticated options market allowed the traders to get the risk exposure they wanted for their portfolios; they could pay for insurance against a certain amount of risk or be paid to take on extra risks. It is clear, then, that this kind of options market could exist only if there were a large number of traders active on the market who were concerned with short-term market movements. Only these traders were sufficiently well up on the market to be able to put a price on the risk. It is not surprising, therefore, that only the frequent share traders participated in the options trade. The same names that are found in the register of Jacob Athias and Manuel Levy Duarte listing their activities in the trading clubs dominated the options trade. Indeed, options were also traded in the meetings of the trading clubs.[69]

An additional advantage of trading options with participants of trading clubs was of course that they were subject to the private enforcement mechanism in force in the clubs. Stock options were never explicitly mentioned in the bans on short-selling[70], but it is to be expected that the courts would judge similarly traders who wrote options without owning the underlying asset as they did the short-selling of forward contracts. The fact that I have not found court cases of reneging option sellers could be an indi-

[69] See, e.g., SAA, PIG, inv. nr. 687, fo. 217.

[70] Moreover, option transactions were never forbidden. Smith suggested that the 1693 brokers' ordinance might also have been a ban on the use of stock options, but this concerned only options on commodities (particularly grain): Smith, *Tijd-affaires*, 83-4. The ordinance can be found in: Noordkerk, *Handvesten* II, 1072. The States-General in 1698 also issued a ban on the use of option contracts, but again this concerned only options on commodities: Placard 17 October 1698, Cau, *Groot placaet-boeck* IV, 1371-2.

cation that the private enforcement mechanism also functioned well for the options trade. Option buyers thus had to choose their counterparties carefully – all the more so since it was obviously tempting for exchange dealers to write options; this being an easy way to get ready money. Josep Francees, for example, who sold a straddle to Raphael Duarte (see the example on page 143) received *f* 1,200 by just signing a piece of paper. And this was not the only option he wrote; within a month's time, Francees received *f* 3,285 in his bank account by writing two straddles and a put option.[71] The options market thus not only allowed investors to carefully transfer part of their portfolio risk, it also tempted traders to take on risks they would never be able to bear.

Conclusions

The development of the derivatives market enabled investors to manage and control their financial risks. The evolution of the various types of transactions made the risks involved in trading VOC shares ascertainable and tradable. Furthermore, the active and speculative traders on the market were willing to trade financial risks. The risk-management possibilities provided by the market are the best proof that the secondary market for VOC shares had become a modern securities market.

It is important to note that the traders could never have used the derivatives market to its full potential without both the legal framework and the private enforcement mechanism of the trading clubs and the *rescontre* being in place, for the derivatives market also tempted traders to take unbearable risks. Writing options, for example, resulted in an immediate positive cash flow. Furthermore, entering into a forward contract required no payment up front, but it did yield the prospect of possible profits. The legal framework and the private enforcement mechanism ensured to a high extent that traders could not just enter into derivatives transactions and walk away if they yielded a loss. Hence, a combination of the availability of sophisticated derivative transactions, a sufficiently large pool of active traders and an efficient enforcement mechanism were required for investors to be able to manage and control their risks according to their needs. The secondary market for VOC shares satisfied these conditions in the second half of the seventeenth century and, as a result, became a modern financial market.

[71] SAA, Notaries, inv. nr. 2239, p. 964, 968, 989.

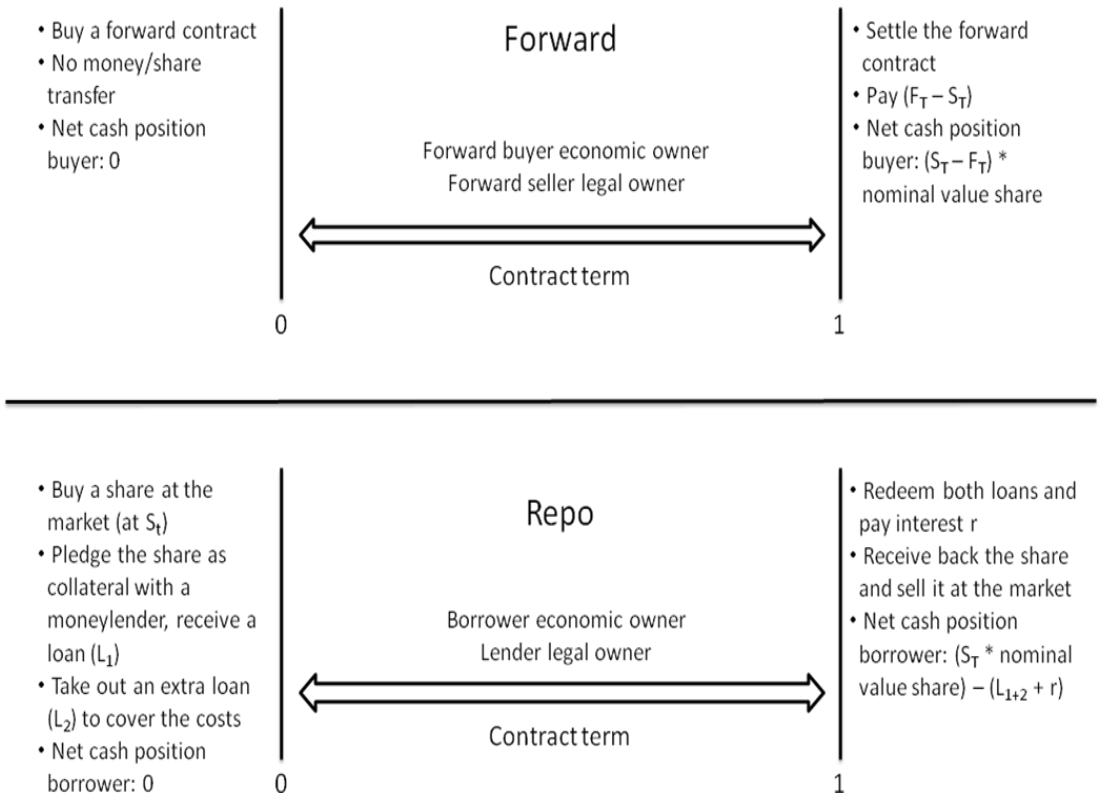

Figure 4.1 Forward and repo transactions represented in diagram form
These diagrams show both transactions from the perspective of the buyer/borrower. On the left side, the steps to be taken to enter into either a forward or a repo are shown. The right side of these diagrams shows the settlement procedures for both transactions and the resulting net cash position of the buyer/borrower. Most importantly, however, the middle part shows that both transactions were similar: they separated the legal and economic ownership of the underlying share during the term of the contract.

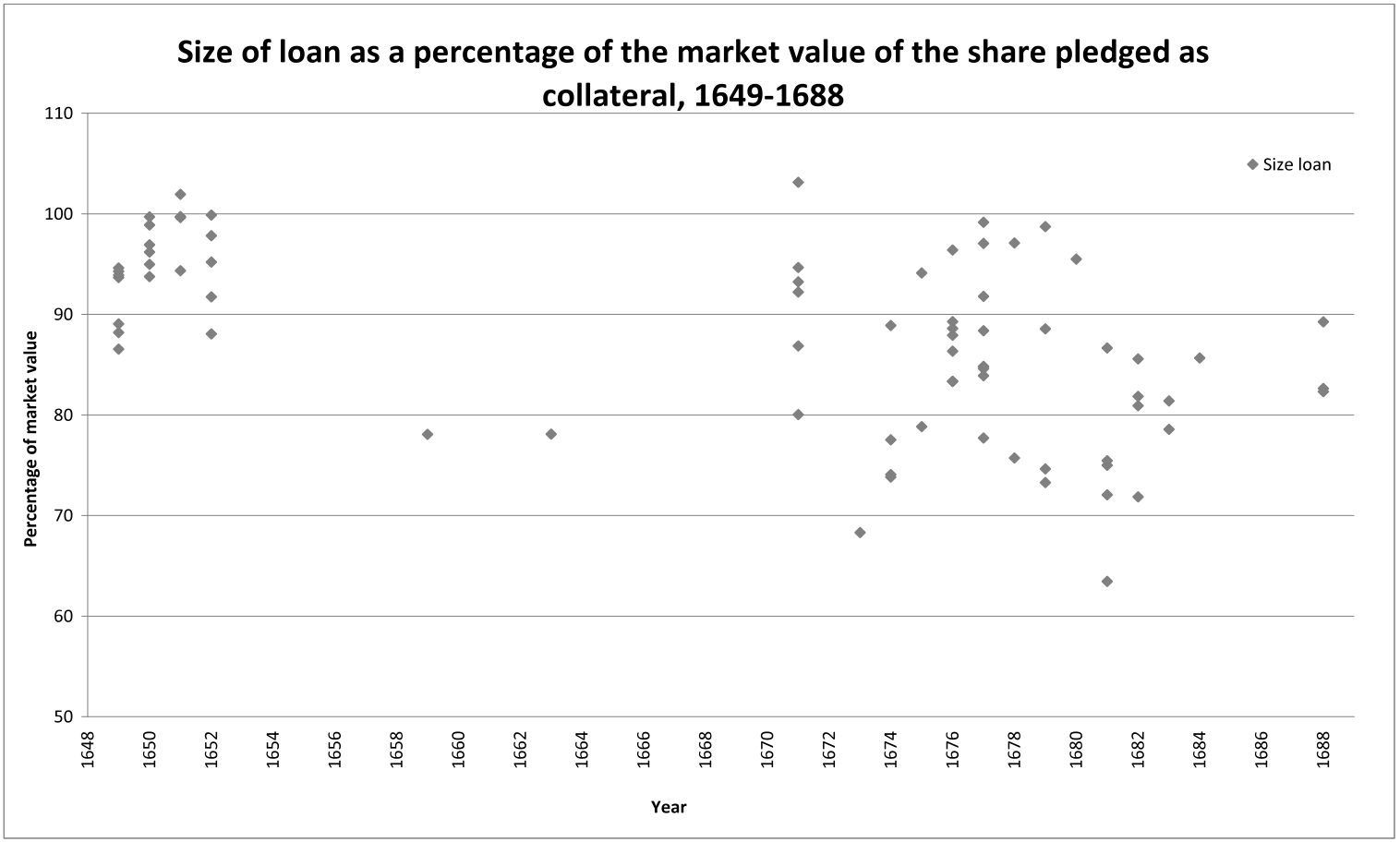

Figure 4.2 Size of loans granted on shares pledged as collateral, 1649-1688
The size of the loans is depicted as a percentage of the market value of the share on the contract date. Sources: SAA, Deutz, inv. nr. 275, 285-8, 293-5. SAA, Merchants' accounts, inv. nr. 50. SAA, PIG, inv. nr. 858. Number of observations: 140.

5 INFORMATION

Introduction

The growth in market activity of the 1630s came at a remarkable moment. In the previous decade, activist shareholders had started a corporate governance debate because they were dissatisfied with the way the company was run. The principal subject of the debate was information. Shareholders wanted to be informed about the financial state of the company.[1] The VOC had skipped its intermediate liquidation in 1612 and again did not make up its books at the end of the first charter. Consequently, investors remained ignorant of the company's financial situation.

The outcome of the corporate governance debate did not alter much in this situation; the chief participants did not share the information they got access to with the other shareholders – they merely acted in the directors' interests.[2] This created a principal-agent problem: the company's shareholders (the principals) were insufficiently able to monitor the performance of the company management (the agents). The shareholders could have made their dissatisfaction with this situation known to the VOC directors by selling their shares in the company. But the opposite happened; the number of shareholders increased and trading activity skyrocketed. This chapter seeks to find an explanation for this seeming incongruity.

The argument is structured in three sections. In the first section, I will discuss on what kind of information the investors of the first decade of the seventeenth century based their investment decisions. This was the time when investors still believed that the company would be liquidated in 1612 or 1623 at the latest. I will subsequently contrast the findings of this section with later periods; first by showing what kinds of information the share price reacted to and then by analyzing how share traders in the

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[1] Investors in equity have higher information requirements than investors in debt. In the case of debt financing, investors know before they enter into a transaction what the rate of return on their investment will be, for the interest rate on the loan is fixed. They also know when they will get the principal back, for the term is fixed as well. So, the main thing moneylenders typically worry about is whether the borrower will live up to his agreements. Investing in equity, however, is different. Investors in a company's equity provide the company with a sum of money whilst there are no arrangements on when the money will be paid back or how the investors will be recompensed for putting their money at the company's disposal. In exchange for this, investors get unlimited upside potential (the chance, in other words, that the return on the investment will be higher than the going interest rate). The level of uncertainty is thus much higher for equity financiers than for moneylenders. Investors therefore need detailed information to make an assessment of the expected risk and return.

[2] See chapter 1, section 1622 – The relation between the company and its shareholders on p. 32 ff.

second half of the seventeenth century obtained the information necessary for their investment decisions.

The theme of this chapter falls into a broader literature on the relation between the availability of information and economic or financial development. According to Shiller, speculative bubbles could occur only after the advent of news media; newspapers enlarged the interest in financial speculation.[3] McCusker and Gravesteijn, on the other hand, argued that developments in the dissemination of information and more specifically the rise of commercial and financial journalism always followed economic developments.[4] Naturally, information is not confined to printed news media. Neal, Neal and Quinn, and Murphy all analyzed the relationship between the development of financial markets in London and the availability of financial information. The general conclusion of their works is that printed information, mainly in the form of price lists, was widely available by the end of the seventeenth century, but that investors relied on their personal networks if they needed information for more complicated investment decisions.[5]

Seventeenth-century Amsterdam, meanwhile, is renowned for its status as an information centre. It became the newspaper centre of Europe, supplying for instance the heavily censored French market with French-language newspapers.[6] Lesger argued that Amsterdam became the commercial centre of the Northern Netherlands after the Dutch Revolt because the city functioned as a crossroads for information flows.[7] Finally, Smith contended that innovations in processing commercial information in seventeenth-century Amsterdam contributed to the modernization of capitalism.[8] An extra research question emerges from this literature: to what extent was the development of Amsterdam's financial market dependent on the city's status as an information centre?

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[3] Robert J. Shiller, *Irrational exuberance* (Princeton 2000) 71. Murphy, *The origins of English financial markets*, 89.

[4] John J. McCusker and Cora Gravesteijn, *The beginnings of commercial and financial journalism: the commodity price currents, exchange rate currents, and money currents of early modern Europe* (Amsterdam 1991) 22-5.

[5] Larry Neal, 'The rise of a financial press: London and Amsterdam, 1681-1810', *Business history* 30 (1988) 163-78. Larry Neal and Stephen Quinn, 'Networks of information, markets, and institutions in the rise of London as a financial centre, 1660-1720', *Financial History Review* 8 (2001) 7-26. Murphy, *The origins of English financial markets*, chapters 4 and 5.

[6] F. Dahl, 'Amsterdam: earliest newspaper centre of Western Europe: new contributions to the history of the first Dutch and French corantos', *Het Boek* 25 (1938/39) 161-197.

[7] Lesger, *Handel in Amsterdam*, particularly chapter 6.

[8] Woodruff D. Smith, 'The function of commercial centers in the modernization of European capitalism: Amsterdam as an information exchange in the seventeenth century', *Journal of economic history* 44 (1984) 985-1005.

Investors' information needs in the first decade of the seventeenth century

In hindsight, it seems odd that anyone would have taken the risk to invest money in the VOC in 1602. The company directors did not state in any way how they would use the money raised by the stock subscription and the shareholders did not get a say in the management. So why would anyone subscribe to the equity stock of this newly founded company?

Four things are of importance in this regard. Firstly, the VOC did not come out of the blue. It was a merger of earlier initiatives in the East India trade: a total of eighty ships had left different ports of the United Provinces between 1595 and 1602, so these ventures were widely known amongst the Dutch. These pioneering ventures had proved that the East-India trade could be very profitable and it had also become clear that in order to really outrun the Portuguese and other competitors, it was necessary to build fortresses, permanent trading posts, refreshment stations along the route, etc. – in sum, more than simply going there, loading the ships and sailing back.[9] Also, the transition from the pioneering voyages to the VOC would not be that big; shareholders would get the opportunity to liquidate their investment every ten years and if they did not want to wait this long, they could also sell their shares to a third party on the secondary market. Hence, from an investors' point of view, the step from investing in one of the *Voorcompagnieën* to investing in the VOC was bridgeable. And that is the second point: shareholders expected their investment to last for only ten years. There can be no doubt about this: the investors called the entity to which they had subscribed their money 'the first ten-year account of the chartered East India Company'.[10] At the same time, however, they knew that the company as a whole would stay in existence for a longer period of time, for the States General had granted the charter for 21 years.

Thirdly, the investors did not subscribe to a faceless company. In Amsterdam, for example, the capital subscription took place at the private house of company director Dirck van Os. Moreover, company directors canvassed for potential investors.[11] All company directors formed part of the local merchant elite: people knew who they were and were also confident that they could entrust these highly reputable merchants

[9] Gelderblom and Jonker, 'Completing', 649-53. Amsterdam alone had accounted for fifty of these ships.

[10] See, e.g. notarial deeds of share transfers in 1604: SAA, Notaries, inv. nr. 96, fo. 173; inv. nr. 98, fo. 53. Also, *insinuatie* 20 February 1610, SAA, Notaries, inv. nr. 267, fo. 128.

[11] Ibidem, 651. This strategy to attract investors had been more important for the financing of the *voorcompagnieën*.

with their investment.[12] Lastly – and this may seems odd in the particularistic Dutch Republic and given the somewhat strange structure of the VOC with six semi-independent chambers – the subscribers of 1602 thought the company to be directly connected to the Dutch Republic as a state. Since the highest governmental body had granted the company charter, the investors felt that they did not simply invest in a company, but rather in the Dutch cause.

However, the VOC did not become profitable as quickly as the pre-companies. In the final years of the first decade of the seventeenth century, the first signs of discontent amongst the shareholders became apparent. The share price stood at a high in 1607 (167%[13]) when bad news started to arrive from the East Indies. Cornelis Matelieff, the leader of a large operation against the Portuguese in 1606, wrote a critical report on the state of the VOC in the East Indies on his return in 1608. At about the same time, shareholders voiced their doubts about the profitability of the company: its warehouses were packed with spices, while they held the market to be saturated.[14] This was also the period of Isaac le Maire's bear-trading consortium. Le Maire was convinced that the shares were overvalued and there was good reason to believe his information to be correct, for he had been a company director until 1605. Finally, in these years the Dutch Republic and Spain were negotiating a truce. The VOC existed only by grace of the war with Spain, for according to the treaty of Tordesillas (1494), the territories outside Europe belonged to either Spain or Portugal. So the signing of a truce could very well have meant the end of the VOC.[15]

It was during this turmoil that Anthoine l'Empereur corresponded with his nephew Jacques de Velaer Junior about the trade in VOC shares.[16] This correspondence gives insight into the considerations and motivations that were the basis for share-traders' investment decisions in the first decade of the seventeenth century. l'Empereur lived in Leyden, some forty kilometers from Amsterdam, and he therefore

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[12] Frentrop, *Corporate governance*, 50.

[13] This is the highest share price I have found (10 April 1607): SAA, Notaries, inv. nr. 106, fo. 229. However, in a memo dating from August 1609, probably written by Isaac le Maire, a share price of 180-200% for 1607 is mentioned: Van Dillen, 'Isaac le Maire', 43 (doc. nr. 4).

[14] Frentrop, *Corporate governance*, 74. The shareholders were also worried about the fact that the company had become heavily indebted: it had taken out large loans at 8% interest.

[15] Israel, *The Dutch* republic, 401-5.

[16] l'Empereur was married to the aunt of De Velaer's wife; De Velaer called l'Empereur 'uncle'. They corresponded anywhere between one and eight times per month from December 1608 until June 1611. l'Empereur had received irregular letters – also from VOC director Jacques de Velaer Senior – before this period, but the frequency increased after l'Empereur informed his nephew about his intention to buy a VOC share. For unknown reasons, the intervals between two letters increased markedly after June 1611.

asked De Velaer to keep him updated about news concerning the East India trade and to perform his dealings on the Amsterdam exchange.[17] De Velaer lived on Oudezijds Voorburgwal, right in the financial heart of Amsterdam; he went to the exchange on a daily basis and was the son of one of the directors of the Amsterdam chamber of the VOC.[18] De Velaer did not provide his services for free: he charged his uncle a commission of 1% of the nominal value of shares purchased and sold.[19]

The primary service De Velaer provided to his uncle was not buying and selling shares, though, but forwarding information. He forwarded both newsletters and international business correspondence – these letters from abroad first arrived in Amsterdam, so the fastest way to get them in regional cities was via an Amsterdam-based receiver[20] – and informed l'Empereur about news he had heard on the exchange. The newsletters, precursors of newspapers, often contained news about the VOC fleet. They were generally considered to be very well informed; even the Amsterdam Chamber of the VOC subscribed to them.[21]

An example of a handwritten newsletter that has survived in the l'Empereur papers reveals the sort of information that shareholders could get from this source. This particular newsletter contained information only about the company's activities east of the Cape of Good Hope, which suggests that there were other information channels available in Amsterdam for VOC-related information concerning events that had taken place closer to the Netherlands. It mainly informed its readership about recent conquests of the VOC and the fortunes of the VOC fleet. It recounted, for exam-

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[17] De Velaer also forwarded news from Amsterdam to his father-in-law Andries van der Muelen in Utrecht. See the correspondence in RAU, Van der Muelen, inv. nr. 47. Van der Muelen was less interested in information related to the share trade, however.
l'Empereur, De Velaer and Van der Meulen all formed part of a few close-knit families, predominantly originating from Antwerp. These families, tied together by marriages, frequently traded together. Van Dillen, *Aandeelhoudersregister*, 83-4. l'Empereur was born in 1552 in Doornik/Tournai in the province Hainaut. De Velaer was born in 1578 in Antwerp. Other families that formed part of network were the Malapert, De Latfeur and De la Faille families.

[18] His letters do not give evidence of inside information, however. In his letter dated 11 June 1611, for example, he reported to his uncle that the company directors had received a letter from St Helena containing extensive information about the business in East India. He did not know the contents of this letter, however – or chose not to inform his uncle about it. De Velaer to l'Empereur, 11 June 1611, BT, inv. nr. 215, nr. B2/7.

[19] Example of a semi-annual bill (16 June 1609), BT, inv. nr. 215, nr. A3/6.

[20] By an old rule, all letters coming from Hamburg to the Netherlands had to pass through Amsterdam: Milja van Tielhof, *The 'mother of all trades': the Baltic grain trade in Amsterdam from the late 16th to the early 19th century* (Leyden 2002) 165. However, De Velaer forwarded letters from Antwerp and Paris too (e.g. De Velaer to l'Empereur, 8 July 1609, BT, inv. nr. 215, nr. A3/14). De Velaer charged his uncle postal charges for this service: BT, inv. nr. 215, nr. A3/6.

[21] Annie Stolp, *De eerste couranten in Holland: bijdrage tot de geschiedenis der geschreven nieuwstijdingen* (Haarlem 1938) 84.

ple, how six ships had left Bantam on 16 November 1608, of which one, named De Grote Sonne, had had to return shortly thereafter because of leakage and another one, named Erasmus, had had leakage problems too, but it had been able to sail on to Mauritius. It also told about the conquest of the island of Makéan and how bad weather had broken two ships, lying at anchor there, from their moorings. This information was partly correct: this incident had indeed occurred (in July 1608), but in fact both ships were wrecked. The last bit of information dated from yet earlier: July 1606. This news must have reached the Netherlands earlier on, but it concerned such a heroic event that the compiler of the newsletter did not want to hold it back: the ship named d'Eendracht had arrived at Bantam and had burnt four or five Portuguese ships on its way there.[22] This news touched on the future of the company and was therefore undoubtedly of interest to investors.

It is remarkable, however, that the newsletters did not contain information about the cargo of the return fleet, which would have been of primary importance for the short-term profitability of the company. So De Velaer had to rely on other sources for this type of information. De Velaer's reports about the approaching return fleet of 1610 allow for a reconstruction of the way this information reached the Amsterdam exchange. Between May 25, when the first rumors circulated, and July 26, when De Velaer could finally check the correctness of all bits of information, a number of different and sometimes contradictory rumors could be picked up on the exchange. It must thus have been difficult to base investment decisions on these bits of information. The most interesting aspect of De Velaer's reports, however, is the sequence with which the news became available in Amsterdam.

The first rumor, about which De Velaer wrote his uncle on May 25, named the ships that were about to arrive, but did not give any information about their lading. It emphasized the fortunes of two Dutch admirals: Paulus van Caerden had been taken prisoner and Pieter Willemsz. Verhoeff had been treacherously killed together with some of his men after they had built a fortress in Bantam.[23] This news came from the crew of the English ship Hector, under command of William Keeling, which had

[22] Handwritten newsletter, undated, BT, inv. nr. 215, nr. A2/8. The publication date of this newsletter is unknown. It can be found in l'Empereur's correspondence of January 1609, but it was probably compiled on a later date, for it contained news about ships that had left Bantam in November 1608. Another example of a handwritten newsletter in the correspondence of l'Empereur, dated 22 June 1609, was written in French and came from Cologne. It did not contain information on the East Indian trade however: BT, inv. nr. 215, nr. A3/8.

[23] Velaer younger to l'Empereur, 25 May 1610, BT, inv. nr. 215, nr. B1/7. According to this rumor, the ships underway to the Dutch Republic were called 'Gelderlant, Bantam, Seelant, Banda *or* Delft'.

encountered the VOC return fleet at sea on 23 December 1609. Keeling had talked to the commander of the Dutch fleet and informed him about the fate of the two admirals – Keeling's ship was faster than the Dutch return fleet; he had left Bantam on a later date than the Dutch, so he had more recent information.[24] Keeling must have had much more information, however, for example about the cargo of the Dutch fleet. He also knew about two other ships heading for the Netherlands: ten days before the Hector had left Bantam, two Dutch ships (Banda and Patania) had left.

De Velaer sent his uncle an update on June 15, in which he again did not give priority to the fleet's cargo. He reported that due to some illness, many crewmen of the ship Gelderland had died. On its way to the Dutch Republic, this ship had called at Mauritius, where the leaky ship Erasmus was stranded. The Gelderland did not bring the cargo of the Erasmus, though, but it did bring 48 healthy members of its crew – many of the crew had died during the journey. The ship mainly carried coarse quality pepper. De Velaer did not have any new information on the other ships of this same fleet, but he did have extra news about the situation in East India. It was now commonly held to be true at the Amsterdam exchange that Paulus van Caerden was kept in prison in Ternate and that the other admiral, Pieter Willemsz. Verhoeff, had been killed, 'although he had been very friendly to the local population of Banda'. Moreover, De Velaer had now also learned that Keeling's crew had reported about the two Dutch ships (Banda and Patania) that had left Bantam shortly before them as well. These ships were laden with wares from the Moluccas (cloves, mace, nutmeg) and were to arrive soon, too.[25]

De Velaer did not report on the arrival of the first ships of the fleet in June and early July. His next letter was dated July 26, when the last two ships had arrived at Texel. The news these two ships carried was far more recent and therefore more valuable than the news from the ships that had arrived earlier, for the newly arrived ships

[24] Hendrick Jansz. Craen wrote in the Gelderland's log about the information William Keeling gave them at sea on 23 December 1609: A. de Booy (ed.), *De derde reis van de V.O.C. naar Oost-Indië onder het beleid van admiraal Paulus van Caerden, uitgezeild in 1606* II (The Hague 1970) 94-95. On this date, the ships were still east of Cape of Good Hope. They accompanied each other during their stay at the Cape, at St. Helena, and during their journey all the way to 48.5 degrees north latitude (according to Craen's log). The Gelderland was in great difficulties: the ship was damaged and due to an unknown illness, a large part of its crew died. The fleet did not get updated information at any of the company's refreshment stations along the route.

[25] De Velaer to l'Empereur, 15 June 1610, BT, inv. nr. 215, nr. B1/8. De Velaer did not mention the source of the new information, but it was probably a letter from Craen to the *Heeren XVII*, written in Dartmouth on 20 May, which is published in De Booy, *Derde reis* II, Appendix 24. The information in this letter corresponds to the news De Velaer reported to his uncle.

had left East India more than six months later. The ships reported only good news about East India: the trade was going fine, there was hope of conquering Ternate soon and the Dutch had formed an alliance with Japan, so that they could now trade with Japan as well. Details about the cargo went together with the news: the ships brought pepper, nutmeg, cloves, mace, silk and china.[26]

This excerpt from the De Velaer-l'Empereur correspondence reveals two things. Firstly, the information l'Empereur received was inadequate for a short-term speculative trading strategy. De Velaer reported only news that he had heard on the exchange; therefore, by the time it reached l'Empereur, the share price had already adjusted to the new information.[27] But this did not matter to l'Empereur; he had invested in the VOC for long-term gains.[28] The correspondence moreover suggests that l'Empereur was not after only financial gain. His decision to invest in the VOC was also motivated by his wish to support the Dutch cause in the East Indies. He for example corresponded with De Velaer about Isaac le Maire's attempt at persuading the French king to found an East India Company – a competitor for the VOC – rather than about his bear-trading syndicate. They saw Le Maire as a traitor to his country rather than a cheater who had deceived his fellow shareholders.[29] l'Empereur need not be representative for all shareholders of the VOC, but the bits of information that reached the Amsterdam exchange give evidence that this was a more general feeling amongst the shareholders. The investors talked about heroic deeds of the Dutch in the East Indies: the burning of Portuguese ships and the conquest of several strongholds on islands of great importance to the spice trade. These events obviously directly influenced the future performance of the company. At the same time, however, shareholders thought illness on board of one of the ships a more important subject to talk about than the specifics of the cargo that was about to arrive in the VOC cities. The fact that petition-

[26] De Velaer to l'Empereur, 26 July 1610, BT, inv. nr. 215, nr. B1/10.

[27] De Velaer himself also often received new information too late to make profitable trades on it. On 4 August 1609, for example, he wrote to his uncle about the first news regarding the return fleet. Four ships had been seen near England and De Velaer had heard that they would bring good news about East India, but did not know any details yet. To his surprise, the share price had already risen in the days before: some people had received the information through a private channel and they had taken advantage of their private information. De Velaer to l'Empereur, 4 August 1609, BT, inv. nr. 215, nr. A4/3.

[28] l'Empereur to De Velaer, between 8 and 12 January 1609, BT, inv. nr. 265. Judging by the fact that he bought his first share with borrowed money on which he had to pay 8% interest, he expected the rate of return on VOC shares to be very high: De Velaer to l'Empereur, 13 January 1609, BT, inv. nr. 215, nr. A2/9.

[29] On Le Maire's bear-trading syndicate: De Velaer to l'Empereur, 19 March 1609, BT, inv. nr. 215, nr. A2/15. On Le Maire's deliberations with the French king: De Velaer to l'Empereur, 8 January 1610, BT, inv. nr. 215, nr. B1/1.

ers and pamphleteers regularly linked the state of the company to the well being of the Dutch Republic further stresses my argument that support for the Dutch Republic was an important motivation for many to invest in the VOC; the authors of these texts realized that many people were susceptible on this point and therefore used it as an argument for their own cause.[30]

This might also explain why l'Empereur chose to invest in the VOC at a moment when the future of the company was insecure. He bought a share in January 1609, when the outcome of the negotiations for a truce with Spain was still uncertain[31], because by purchasing a share, he could show that he wanted the company to continue its activities in the East. Being an immigrant from the Southern Netherlands – like so many of the early investors in the VOC[32] – l'Empereur was probably particularly sympathetic towards the Dutch cause in the conflict with Spain.[33] So, although the information available to l'Empereur was nowhere near enough to really know what was going on within the company, he probably did not care: l'Empereur learned that the VOC had a growing chance of success in the East and by investing he supported the Dutch cause.

Market reactions to information

During the period 1602-9, shareholders never received an official statement from the company, so the announcement of the first dividend in March 1610 was an important

[30] The company directors, for example, used it in 1609 to argue that short-selling should be prohibited: the short sellers not only disrespected the company, but also the United Provinces as a whole. Petition VOC directors to States General, 1609: Van Dillen, 'Isaac le Maire', 31-2 (doc. nr. 2). See also: De Marchi and Harrison, 'Trading "in the wind"', 51-2. The shareholders who made a case for leaving the share trade free, replied in a counter petition to the States of Holland that they were devoted to their fatherland: Van Dillen, 'Isaac le Maire', 34 (doc. nr. 3). The activist shareholder who took open action against the company management also linked the VOC to the condition of the country. E.g. *Vertooch aen de Ed. Ho. Mo. Heeren Staten Generael*. Finally, according to De la Vega, even in the late seventeenth century, there were still investors, so-called 'liefhebbers', who always held long positions; as 'devotees' of the company, *and the Dutch Republic*, they were constantly trying to push up the share price: De la Vega, *Confusión de confusiones*, 102.

[31] See footnote 15.

[32] 301 (or 26%) of the 1143 subscribers to the Amsterdam chamber capital stock in 1602 came from the Southern Netherlands. Their average subscription to the stock was relatively high; they subscribed slightly over 38% of Amsterdam's stock: Van Dillen, *Aandeelhoudersregister*, 55.

[33] Cornelius Plancius voiced similar feelings about the predecessors of the VOC in his late-sixteenth-century description of Amsterdam: they were deployed to maintain the freedom of the Dutch Republic, rather than to suppress other countries. Their revenues went to the churches and to other laudable institutions: Cornelius Plancius, 'Beschrivinge der loflijcke ende wijtvermaerde coopstede Aemstelredamme' (1597), in: P. Scheltema (ed.), *Aemstel's oudheid of Gedenkwaardigheden van Amsterdam* II (1856), 1-12, there 11. Very little is known about Cornelius Plancius, but it could very well be that he belonged to the same family as Petrus Plancius, the famous cartographer and clergyman who immigrated from the Southern Netherlands to Amsterdam.

event. The market participants had to assess the value of this dividend; was it more or less than they had expected? The fact that the directors announced a dividend in kind (shareholders were given the opportunity to receive 75% of the nominal value of their shares in mace[34]) did not make the assessment any easier. Did this, for instance, indicate that the company had cash-flow problems? And what was the market value of the batch of spices shareholders could collect at the East India house?

The company set a price for the mace (11 and 9 *stuivers* per pound, for high and lower quality mace, respectively) to be able to calculate the amount of mace each individual shareholder was entitled to. To make the offer more inviting, the company promised that it would not sell mace at a lower price in the next two years.[35] De Velaer advised his uncle to accept this dividend, because he did not expect a cash dividend to be imminent. He also wrote that l'Empereur should ship it to another place, as the dividend deluged the Amsterdam market for mace.[36] l'Empereur hesitated and did not take any action. This pattern recurred in September 1610, when De Velaer advised his uncle to accept the second dividend (50% of the nominal share value in pepper plus, only for those shareholders who had accepted the dividends in kind, 7.5% in cash) and either grant a spice trader authority to sell it on the Amsterdam market or ship it to Venice, Naples or Danzig: there were 'good ships' leaving for these places shortly.[37]

The De Velaer-l'Empereur correspondence clearly shows that the company's decision to distribute spices burdened the investors with a hard choice. The directors of the first hour were all experienced spice traders themselves (they were the pioneers of the East India trade for a reason) and there were quite a few investors who were keen on receiving the dividend[38], but traders with little or no experience as commodity merchants – there were quite a few of them amongst the shareholders – must probably have had no idea what to do with the spices.[39] Even those who had an interest in

[34] See footnote 39 on page 28.
[35] De Velaer to l'Empereur, 19 March 1610, BT, inv. nr. 215, nr. B1/5. The prices of 11 and 9 *stuivers* equaled the prices at which the company had recently sold mace on the market.
[36] De Velaer to l'Empereur, 24 March 1610, BT, inv. nr. 215, nr. B1/6. l'Empereur to De Velaer, 21 March 1610, BT, inv. nr. 265.
[37] De Velaer to l'Empereur, 30 September 1610, BT, inv. nr. 215, nr. B1/11.
[38] There were even people who bought shares after the dividend announcement in order to be able to receive the mace: De Velaer to l'Empereur, 24 March 1610, BT, inv. nr. 215, nr. B1/6.
[39] De Velaer wrote to his uncle that many shareholders were hesitant about what to do with the mace: De Velaer to l'Empereur, 24 March 1610, BT, inv. nr. 215, nr. B1/6.

East-Indian wares did not know what to do with spices, as the example of l'Empereur, a silk trader[40], shows.

The market nevertheless reacted positively to the earliest dividend announcements. The *cum*-dividend price – the price paid for shares that were entitled to receiving the dividend distribution – increased from around 130% in October 1608 to 156-8% right after the announcement.[41] The *cum*-dividend price rose further to 170% after the second dividend.[42] The dividends were of course not isolated events, so these increases in the share price cannot be solely attributed to the announcements, but the market undoubtedly reacted positively to the dividend distributions. Shareholders probably regarded them as official confirmations of the news shareholders had already received via information channels external to the company: business was going well in the East Indies.

From 1623 onwards, the VOC started distributing dividends on a regular basis.[43] It is not surprising that the company changed its policy in 1623; this was the principal reaction to activist shareholders' requests for financial reports. The shareholders did not get permission to inspect the company's financial records, but from this moment on the dividend distributions functioned as reports on the financial situation of the VOC. The information concealed in the dividends was of course inadequate to assess, for example, the value of the company's assets and liabilities, but it did give the shareholders an impression of the performance of the company. A dividend increase could very well be a sign that the company's financial situation had improved. A decrease, on the other hand, meant bad news. A conversion from dividends in cash to either kind or obligations would also be negatively interpreted. In sum, the absolute value of the dividend was of no particular importance to the shareholders; what really interested them was the size of the dividend compared to earlier years and hence the informational value of the dividend.[44]

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[40] l'Empereur regularly asked De Velaer if the VOC return cargo contained silk and he had a special interest in the silk price on the Amsterdam market.

[41] This price quote, 9 April 1610: SAA, Notaries, inv. nr. 120, fo. 2. See chapter 2, section Share price and dividends on page 65 ff. for a discussion on *cum*- and *ex*-dividend prices in the period before 1618.

[42] This price quote, 30 October 1610: SAA, Notaries, inv. nr. 196, fo. 597v-598r.

[43] Two-yearly dividends in the 1620s and first half of the 1630s; from 1635 onwards every year. In the remainder of the century, only the wars with England and France made the company deviate temporarily from the distribution pattern. See also chapter 2, section Share price and dividends on page 65 ff. and Appendix B – Dividend distributions VOC, 1602-1700.

[44] In corporate finance models, which assume the existence of perfect capital markets, a firm's value is unaffected by its dividend policy. See e.g. the famous article by Modigliani and Miller: Merton H. Miller and Franco Modigliani, 'Dividend policy, growth, and the valuation of shares', *The journal of business* 34 (1961) 411-33. In these models, a share's value equals the present value of all future divi-

In the first half of the seventeenth century, the company directors determined the size of the dividend soon after the arrival of the return fleet, generally in autumn. The management thus really let the owners of the company have a share in the success of the trade. This policy changed in the second half of the century. From now on, the dividends were announced at the end of the yearly meeting of the *Heeren XVII* in spring. At this meeting the directors also drafted the annual report, allowing them to adjust the size of the dividend to the performance of the company as a whole.[45] Clearly, the outcome of this meeting was very important for the shareholders. The transaction data from the VOC capital books show a heightened level of activity in the share trade around the spring meetings in March (see Figure 2.1 on page 78 and Figure 2.5 on page 80) and a letter of share trader Rodrigo Dias Henriques confirms this. He wrote that as soon as the first rumors about the dividend went round on the exchange, a great game for *liefhebbers* (those who loved the trade) started.[46] In other words, the traders immediately started speculating on the correctness of the rumors and the impact the dividend would have on the share price.

The tension amongst the share traders on the night of the dividend meeting of the directors becomes clear from a letter of Jeronimus Velters, dated 13 March 1688. The meeting was closed and the outcome confidential, so shareholders had to rely on rumors until the directors made an official announcement – some weeks after the meeting. Already months before the meeting, however, traders started assessing the size of the upcoming distribution. In 1688, many traders had expected the dividend to be 25% in cash.[47] But then Velters heard a rumor, which he held to be correct, that the distribution would amount to only 22.5% of the nominal value of the company stock. He instantly liquidated his position and sold two forward contracts (nominal values: *f* 6,000 and *f* 30,000 at 557.75 and 559% – please note that these were short sales) with a settlement date of 1 May. Not everybody believed the rumor, though, so the price increased a bit in the next few days.

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dends – which instantly explains why the share price decreases by the value of the dividend just distributed. However, this does not hold in a world with capital markets that are imperfect, due to e.g. asymmetric information, where dividends also have information content. See e.g. Merton H. Miller and Kevin Rock, 'Dividend policy under asymmetric information', *Journal of finance* 40 (1985) 1031-51.

[45] J.P. de Korte, *De jaarlijkse financiële verantwoording in de VOC, Verenigde Oostindische Compagnie* (Leyden 1984) 65, 68.

[46] Dias Henriques to Levy Duarte, 17 February 1698, SAA, PIG, inv. nr. 681b, p. 109.

[47] Ibidem. In previous years, the VOC had distributed 20% in cash (15 April 1687) and 12.5% in cash (1 May 1686): Van Dam, *Beschryvinge* 1A, 433-436.

On the night of the meeting, broker Gerrit Loot offered many shares for sale; there were rumors amongst the traders who were present on Dam Square that these shares belonged to Adolf Visscher, others said Jacob Quina, Isaac les Paul, Gerard Putmans, Cornelis de Groot or Velters himself – these were prominent share traders and they were generally considered to be well-informed. Consequently, nobody dared to buy the shares; the price sunk 2%, but Loot refused to sell for less.[48] This situation lasted until 8.30 p.m. and then reversed: the price rose to 566% and there were suddenly only buyers on the market. Minutes earlier, the meeting of the *Heeren XVII*, which took place in the East India house, less than 500 meters from Dam Square, had ended. The company directors did not want to release any information about the size of the dividend, but after having talked to some of the directors, the shareholders got the feeling that they had had a pleasant meeting. Hence they concluded that the dividend would be higher than expected. The next day, many shareholders held the opinion that the company would distribute 22.5% in cash and another 15% if the return fleet arrived safely. Velters had tackled all his contacts about extra information and he was pretty sure that the dividend would be 33 1/3% in cash, to be distributed on 1 May.[49] His information proved correct. Apparently Velters had personal access to (one of) the company directors, chief participants or their close relatives – not surprising, for Velters himself belonged to the regent clique.

This example clearly shows how important the outcome of the meeting was for the shareholders: a large number of them were present on Dam Square during the meeting to be able to instantly react to any rumors regarding the dividend. Share-price movements around the yearly meeting are thus particularly telling about how the shareholders interpreted the signal that was concealed in the proposed dividend distribution. Unfortunately, my dataset does not allow for a more thorough analysis of these (probably) volatile periods; I have too few price observations for the periods around the dividend announcement dates.[50]

Naturally, the market not only reacted to company-specific information. On the contrary, political and military events were of major influence to the share price. The share price movements of 1672 and 1688 give insight into the kinds of informa-

[48] Velters to Holla, 14 March 1688, SAA, Velters, inv. nr. 4, fo. 78.
[49] Idem.
[50] Nor do I know when exactly during the meetings, which took several days, the subject of the next dividend distribution came up. The official dividend announcement dates are known, but as the Velters-Holla correspondence shows, the information concealed in the announcement already filtered through long before the official announcement.

tion the market reacted to and how it reacted. Both years witnessed large price falls, which led to a high number of *insinuaties* – share traders wanted to make sure that their counterparties would not walk away from their losses. Hence there is a relatively high number of price observations available for these years (55 and 35 for 1672 and 1688, respectively).

Figure 5.1 shows the price of Amsterdam chamber VOC shares for the period 7 July 1671 – 28 December 1672. The 7 July 1671 (566%) observation is the highest price I have found for the entire seventeenth century – accidentally, the share price reached the exact same level on 13 March 1688. The shareholders received several indications that things were going very well with the company: in May 1671, the VOC announced a record-high dividend (60% of the nominal value of the company's stock in cash; 45% was distributed on June 1, the remaining 15% on July 20)[51] and also in this year, a total of 22 ships arrived from the East Indies.[52] But the bullish* atmosphere made way for fear that war would break out.[53] On 30 October, Jeronimus Velters wrote that the share traders' fear of war had brought the share price down to 480%.[54] Over the next months, it became clear that war would be unavoidable and the share price decreased steadily to 406-13% in late February.[55] The price remained stable – it even rose slightly – until the day England declared war on the Netherlands (March 12). It then tumbled to around 370% in late March and fell even further when France followed England and also declared war on April 8th. The share price decreased by more than 100 percentage points in a single month and stood at 311% in early April.[56] The lowest point was reached only in July (290% on July 20)[57], however, after the enemy forces had occupied much of the east and north of the Dutch Republic. A month earlier, on 13 and 16 June, the French armies had even taken the towns Utrecht and Naarden – both very close to Amsterdam.

The share price again started an upward trend in early August, after a convoy of fourteen VOC ships had managed to sail around the English navy and the momen-

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51 Van Dam, *Beschryvinge* 1A, 435.
52 Eleven ships arrived in mid-June, another nine ships in mid-July, and the remaining two arrived on August 24th and September 2nd: DAS.
53 See, for a general account of the political and military events of 1672, Israel, *The Dutch Republic*, chapter 31. See, for the economic impact of 1672: Jonathan I. Israel, *Dutch primacy in world trade, 1585-1740* (Oxford 1989) 292-9.
54 Velters to Fletcher, 30 October 1671, SAA, Velters, inv. nr. 1, fo. 237.
55 Velters to Fletcher, 26 February 1672, SAA, Velters, inv. nr. 1, fo. 252.
56 Velters to Fletcher, 29 March and 5 April 1672, SAA, Velters, inv. nr. 1, fo. 258-9.
57 SAA, Deutz, inv. nr. 293, fo. 86. Please note that this is an ex-dividend price; the VOC distributed 15% of the nominal value of the company's stock on June 2.

tum of the war in the east and the north changed. The fact that the murder of the De Witt brothers is not visible in the share price indicates that the share traders were either not surprised by the political upheaval, or that domestic politics were deemed of lesser importance for the profitability of the VOC than foreign relations. The upward trend stalled in May 1673, when the share price fell back to 314%. This price, however, incorporates the dividend distribution of 33 1/3% of the nominal value of the company's stock in obligations of the States of Holland and Zeeland (June 1), which had been announced on May 16. Interestingly, the share price fell by about the size of the dividend distribution. This indicates that the shareholders did not react strongly on the signal that the company was unable to distribute cash to its shareholders. Put another way, they did not update their beliefs on the state of the company after this dividend announcement. In the following years, the share price started to rise quickly. The war with England had come to an end and the Dutch Republic had found several allies in its war with France. The dip in 1678 (see Figure 2.6) must probably be attributed to the disappointing outcome of the Peace of Nijmegen. The share price movements of 1672 and the years thereafter thus show that the share price reacted particularly strongly to events in the international political and military situation.[58] Hence shareholders would have derived benefit from an international information network.

Figure 5.2 shows the share price for 1688. A 33 1/3% dividend distribution caused the price decrease that is visible in April[59], but the large price fall in late August and the smaller one in October of course deserve all the attention. Israel has dealt with this episode extensively in his article 'Jews and the stock exchange: the Amsterdam financial crash of 1688'. Using mainly the reports to London of Daniel Petit, English consul at Amsterdam, Israel has shown that until the end of August only a very small number of people knew about Stadholder William III's plans for an invasion of England, even though William had started preparations for the invasion already in May. In early August, some marine preparations were underway, but on such a small scale that people believed that they were aimed at Algerian corsairs. Around this time, moreover, share traders were mainly concerned with the news about the return fleet.

[58] Israel has noticed the same: Israel, *Dutch primacy*, 86.
[59] This is thus not a structural price change, but merely the difference between the *cum-* and *ex-*dividend price.

According to Israel, the first rumors about the invasion reached the stock exchange on August 24, on which day foreign diplomats at The Hague also mentioned the possibility of war with England for the first time.[60] Israel got his information on this episode from De la Vega's *Confusión de confusiones*, who wrote that the news reached the share market via Jewish trading clubs. Hence, Israel argues that the Sephardic community, and in particular a number of influential Jews who stood in close contact with William III[61] and who may therefore have had private information about the invasion, played a very important part in this stock market crash. They probably deliberately manipulated the news in order to bring the share price down.[62]

Surprisingly, Jeronimus Velters gave a different explanation for the price fall of late August 1688. On August 24, he wrote to Jacob Boreel that the first price decrease had occurred in the afternoon of Saturday, August 22. The night before, the Amsterdam delegates to the States of Holland had returned to the city. On Saturday, Jacob ten Grotenhuijs, one of the delegates, ordered several brokers to sell shares at any price. This instantly brought the price down to 480%. Velters named four reasons for the setback of the price: the naval preparations that were underway, the recruitment of 18,000 soldiers, the decree to levy a tax on French produce and lastly, and according to Velters most importantly, a plan of the provincial authorities to curb the share trade. Velters took this point very seriously, because the Grand Pensionary, the highest official in the Dutch Republic, had started the discussion on this topic.

Velters further wrote that in the following days, the price fluctuated. It even temporarily climbed back to 505% on August 24, the day on which, according to Israel, the price started to collapse, but later that afternoon news about French troops advancing to Liège brought the price down to 488%.[63] Velters had been to the exchange that day, but had not linked the naval preparations to an invasion of England. He sent Boreel an update of the share price (491%) on August 27, without specifying

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[60] Israel, 'The Amsterdam financial crash of 1688', 472-4.

[61] Israel names the following members of the Sephardic community: Jacob Pereira, Antonio (Moseh) Alvares Machado, Jeronimo Nunes da Costa and Francisco Lopes Suasso: Israel, 'The Amsterdam financial crash of 1688', 482-3.

[62] Israel quotes the pamphlet *Relaes en contradictie* to prove this claim: Israel, 'The Amsterdam financial crash of 1688', 484. However, the anonymous author of *Relaes en contradictie* only stated in general that it had occurred that people deliberately tried to bring the share price down. He did not specifically mention the Jews or the price crash of 1688, which, incidentally, would not even have been possible, for the pamphlet was published in 1687. *Relaes en contradictie op de motiven, om het koopen en verkoopen van Oost- en West-Indise actien, die niet getransporteerd werden, ende optie partyen te beswaren met een Impost by de Heer Nicolaes Muys van Holy, Advocaet tot Amsterdam, onwetende voorgestelt, en daer en boven getoont waer in waerlyk Hollants intrest en welvaeren bestaende is* (s.l. 1687) 1. See also: Smith, *Tijd-affaires*, 76.

[63] Velters to Boreel, 24 August 1688, SAA, Velters, inv. nr. 4, fo. 87.

more details.[64] On August 31, he reported that VOC shares now sold for 463%. The share traders feared that the authorities would decide to levy a tax on every share transaction – following the proposal of Nicolaas Muys van Holy.[65] Three days later, the share price had recovered to 474%.[66]

The most plausible explanation for Velters not mentioning the fear that war would break out is that he tried to link what he saw happening on the stock exchange with the information he was sure to be correct. Velters, himself city secretary of Amsterdam, had good connections with the authorities, so he knew what was going on within the governmental bodies of the Dutch Republic. And indeed, the States of Holland had held deliberations about a renewal of the ban on short-selling on August 21.[67] He probably also heard rumors about the invasion, but deemed these to be premature and decided not to write about them.

But Israel's account, heavily influenced by De la Vega's dramatized account of this episode, is not fully correct either. The Jewish traders were not solely responsible for the price fall and, more importantly, the crash was not as large as Israel's sources suggest. Velters may not have reported all the causes for the price fall to Boreel, but his price observations were no doubt correct – he had been among the share traders in the days of the crash and he had even traded shares himself. The share price did not tumble from 580 to 370% between August 24 and 28 and even to 366% in early September, as De la Vega and Israel write[68], but from 563% in March to 463% on August 31. The strong 'patriotic' rally, that should have followed in the first half of September, where the share traders suddenly endorsed William's plans, never occurred[69], the share price rather continued falling until it reached its lowest point on September 14 (414%)[70], the day on which the Amsterdam city council made inquiries about the purpose of the naval preparations.[71] It then climbed up again to 433%[72] on September 16, and fell back for the last time to 416%[73] on October 17, just after the

[64] Velters to Boreel, 27 August 1688, SAA, Velters, inv. nr. 4, fo. 88.
[65] Velters to Boreel, 31 August 1688, SAA, Velters, inv. nr. 4, fo. 89. For the Muys van Holy proposal, see p. 72.
[66] Velters to Boreel, 3 September 1688, SAA, Velters, inv. nr. 4, fo. 91.
[67] Resolutions States of Holland, 21 August 1688, NA, States of Holland, inv. nr. 121, fo. 491.
[68] Israel's price observations can be found in the appendix to his article: Israel, 'The Amsterdam financial crash of 1688', 487.
[69] Israel, 'The Amsterdam financial crash of 1688', 484-5.
[70] Israel, 'The Amsterdam financial crash of 1688', 478.
[71] Dreiskämper, *Aan de vooravond*, 61.
[72] Israel, 'The Amsterdam financial crash of 1688', 478.
[73] Velters to Holla, 17 October 1688, SAA, Velters, inv. nr. 4, fo. 92.

authorities in the Dutch Republic had decided on economic sanctions against France.[74] Hence, by the time William III's invasion actually took place (the first attempt to sail away on October 30 failed, the second attempt on November 12 was successful[75]), the share price had already started an upward trend. In the following decade, it fluctuated between 485 and 517%.

So far, this chapter has discussed the factors that influenced the share price. Share traders were interested in news about the state of affairs in the East Indies, about the return cargo that was underway, about the size of dividend distributions and the political and military situation in Europe. The trading behavior of other share traders of course also influenced the price, so it was also profitable to have some knowledge of the investment sentiment of other traders. Speculators needed constant updates on all these different categories of information. Furthermore, for their trades to be profitable, they needed to be the first to get news that could influence the share price. The next section will explore how share traders managed these information needs.

The information networks of Christian and Jewish share traders

De la Vega already noticed that speculators needed to have private correspondents in the Indies, who could send them the latest news via the overland route or on an English ship, thus trying to get information on return cargoes and the overseas branches of the company quicker to the Dutch Republic than on the VOC return fleet. He also wrote that it was vital for a share trader to keep abreast of news about the political situation in Europe.[76] It is doubtful whether all share traders had private correspondents, but the correspondence of two active share traders, Jeronimus Velters and Manuel Levy Duarte[77], shows that these investors were constantly trying to get information concerning the East India trade. Their correspondence reveals how early modern share traders managed their information needs.

Comparing the correspondence of the two traders is interesting for yet another reason: these traders belonged to two distinct groups of share traders – Christians and

[74] Dreiskämper, *Aan de vooravond*, 62.
[75] J.R. Bruijn, *Varend verleden. De Nederlandse oorlogsvloot in de zeventiende en achttiende eeuw* (Amsterdam 1998) 122.
[76] De la Vega, *Confusión de confusiones*, 92.
[77] The Levy Duarte correspondence is kept in the archive of Amsterdam's Portuguese-Jewish synagogue: SAA, PIG, inv. nrs. 675-91. The Velters papers can be found in the Velters family archive, which, incidentally, contains the correspondence of only Jeronimus Velters: SAA, 2.

Portuguese Jews. Their letters therefore give insight into the information networks of both communities. Velters was a very wealthy Christian merchant: his estate was valued at *f* 107,760 at his death in 1707. He (and his family) had gained this wealth in commodity trade with France and Spain. But Jeronimus shifted the focus from international trade to civil administration. He became city secretary of Amsterdam in 1673, accepted other administrative duties in regions around the city and became a VOC director for the Amsterdam chamber in 1693.[78] Levy Duarte, on the other hand, was a Portuguese-Jewish merchant jeweler, who formed part of an international network of merchant jewelers.[79] Moreover, as a member of the Portuguese-Jewish community, he could probably benefit from the information network of the Diaspora. The Sephardic Jews had business and family connections in the Iberian Peninsula, the Caribbean, France, Italy, India, North Africa and London.

Israel has pointed out that the cohesion of the Diaspora's information network was unsurpassed and this seems to have also held true for the Portuguese Jews who traded shares.[80] When, for example, Rodrigo Dias Henriques, the exchange agent of Manuel Levy Duarte who was also in charge of gathering information for his master[81], met some other Portuguese Jews during the Sabbath in the first week of October 1693, they sat together and shared their news about the VOC.[82] Dias Henriques had the advantage, moreover, that he was the exchange agent of several Portuguese Jews, including, from 1697 onwards, Francisco Lopes Suasso and Abraham del Sotto.[83] These cousins were prominent members of the Sephardic community of Amsterdam. Lopes Suasso was the political and financial agent of the King of Spain in the Dutch Republic and he was also one of the Jews who had access to the court of William III, stadholder of the Netherlands and king of England.[84] He had thus a very good network in several parts of Europe.

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[78] Elias, *Vroedschap* II, 669.

[79] Edgar Samuel, 'Manuel Levy Duarte (1631-1714): An Amsterdam merchant jeweler and his trade with London', *Transactions* 27 (1982) 11-31.

[80] Israel, 'The Amsterdam financial crash of 1688', 457-8.

[81] Levy Duarte sometimes gave Dias Henriques specific buying or selling orders: e.g. Levy Duarte (from Antwerp) to Dias Henriques, 9 October 1692, SAA, PIG, inv. nr. 683, p. 20. But in August 1692, Dias Henriques received *f* 15,000 to trade as he thought proper: Levy Duarte to Dias Henriques, 25 August 1692, SAA, PIG, inv. nr. 683, p. 18.

[82] Dias Henriques to Levy Duarte, 8 October 1693, SAA, PIG, inv. nr. 677, pp. 887-9.

[83] Dias Henriques to Levy Duarte, 16 January 1697, SAA, PIG, inv. nr. 681a, pp. 534-5 and 11 February 1698, SAA, PIG, inv. nr. 681b, pp. 125-6.

[84] Daniel Swetschinski and Loeki Schönduve, *De familie Lopes Suasso, financiers van Willem III = The Lopes Suasso family, bankers to William III* (Zwolle 1988). D.J. Roorda, 'De joodse entourage van de Koning-Stadhouder', *Spiegel Historiael* 14 (1979) 258-66. Israel, 'The Amsterdam financial crash', 458. The Por-

The traders on the Amsterdam market were well aware that different groups could dispose of different information sources; they watched each other closely. Dias Henriques noticed in September 1697 that the Dutch traders sold large amounts of shares. This led him to question the correctness of his own information, but in the end he trusted his personal information and decided to hold on to his shares.[85] On 3 September 1688, Velters stepped up to Alvares[86], the only big share trader who gave selling orders after the large price fall of August 1688, to ask him for his motivation, but he did not get an answer.[87] This shows that the information of the Portuguese Jews was unattainable for someone like Velters.

It was not only the Sephardic community, however, that frequently possessed valuable information. Velters also observed the English traders on the exchange, who obviously had reliable information from England.[88] As shown in the previous section, the English news was very important, for threats of naval war had large impact on the profitability of the VOC and thus on the share trade. During the Anglo-Dutch naval wars, the English tried to hijack all Dutch ships, including those belonging to VOC return fleets. The Dutch let navy ships escort the trading vessels to reduce the risk of hijacking, but they could not take it away entirely.[89] Moreover, since Dutch politics could influence the share price, share traders also closely watched the trading behavior of members of the various governmental bodies. Velters thus instantly grew suspicious when he observed in late November 1687 that a number of these men sold their shares. He had heard three different rumors[90], but wanted to get confirmation before he took action. He therefore turned to Theodore Holla, one of his correspondents

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tuguese Jews of Amsterdam were famous for their information network. The example of Sir Salomon de Medina is telling of the way Portuguese Jews organized the supply of information. De Medina, a famous supplier to the English troops, stood at the rear of the army during military campaigns in the War of the Spanish Succession (1701-14). He sent his information through special couriers to his agent on the exchange. His agent was the first to receive the news from the war and could thus perform very profitable transactions: Oskar K. Rabinowicz, *Sir Solomon de Medina* (London 1974) 35.

[85] Dias Henriques to Levy Duarte, 22 September 1697, SAA, PIG, inv. nr. 681a, pp. 440-1.

[86] Velters did not mention Alvares' first name. He might have been Rodrigo Alvares Pinto or Isaac Alvares.

[87] Velters to Boreel, 3 September 1688, SAA, Velters, inv. nr. 4, fo. 108.

[88] Velters to Holla, 25 July 1687, SAA, Velters, inv. nr. 4, fo. 59.

[89] The East India return fleet also took a different route in times of war; they went round the British Isles and sailed as close as possible to the Norwegian coast.

[90] He wrote to Theodore Holla that he had heard that there was something concerning the relation with the County of Bentheim, close to the eastern border of the United Provinces; others said that the authorities were recruiting 9,000 navy men and he had also overheard that certain members of the ruling elite were susceptible to a proposal 'by a certain Muys van Oli' to reform the regulations of the share trade. Velters to Holla, 28 November 1687, SAA, Velters, inv. nr. 4, fo. 66. For the Muys van Holy proposal, see p. 72.

who was a delegate to the States of Holland in The Hague, to find out what was going on.[91]

Velters used his The Hague correspondent to get any political news that could have an effect on the share price as quickly as possible. This information was vital for his investment decisions, but Holla was not as reliable a correspondent as Velters had hoped for.[92] On 24 February 1688, for example, Velters noticed on the exchange that Isaac Abenacar was selling shares. Velters himself held the opinion that the share price was about to increase, but he now sensed that something was up, because Abenacar was the broker of Adolf Visscher, an active and very wealthy share trader who was generally thought to dispose of high-quality information.[93] But Velters had heard no news or rumors that he could link to Visscher's willingness to sell. He returned home and shortly afterwards came upon the postman who held an express delivery from Holla. The postman was agitated that the letter carried the wrong address: Holla had mistakenly written Herengracht instead of Keizersgracht. Velters tore the letter open and learned immediately why Visscher expected a drop in the share price. He hurried back to the exchange and still managed to sell shares for a total nominal value of *f* 18,000 at 558 and 558.5%. This was a significantly lower price than the price for which Visscher had managed to sell (565%); Visscher had reaped all the profits.[94]

Clearly, chances of quick profits went by in a matter of an hour, so reliable private information channels were indispensable for traders whose aim it was to make profits by quickly buying and selling shares. Holla's inaccuracy had thus taken away a chance for a good profit and Velters became angry with him. Velters' temper got worse when it turned out that Visscher had also obtained his information from Holla. Velters could not tolerate such a situation and demanded that Holla immediately discontinue his correspondence with Visscher.[95] When Holla did not react to Velters' request right away, Velters terminated their correspondence.[96] Velters was unable to

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[91] Holla was a former burgomaster of the city of Schoonhoven. Velters to Holla, 12 September 1687, SAA, Velters, inv. nr. 4, fo. 63.

[92] This frequently led to quarrelling: e.g. Velters to Holla, 19 August 1686, SAA, Velters, inv. nr. 4, fo. 32. Velters to Holla, August 1687 (no exact date), SAA, Velters, inv. nr. 4, fo. 61. Velters to Holla, 12 September 1687, SAA, Velters, inv. nr. 4, fo. 63. Velters to Holla, 24 July 1690, SAA, Velters, inv. nr. 4, fo. 138.

[93] Adolf Visscher, who lived right by the exchange building, was an insurer and merchant, who traded with the West Indies, the Baltic region and the Mediterranean. He was assessed for a capital of *f* 140,000 in 1674: Elias, *Vroedschap* I, 473.

[94] Velters to Holla, 24 February 1688, SAA, Velters, inv. nr. 4, fo. 74.

[95] Velters to Holla, 29 February and 14 March 1688, SAA, Velters, inv. nr. 4, fo. 76, 78.

[96] Velters to Holla, 18 March 1688, SAA, Velters, inv. nr. 4, fo. 79.

find a replacement informant, however, and resumed corresponding with Holla during the 1688 crash when fresh political news was very valuable. But only a few months later, Holla violated Velters' confidence again. Velters suspected Holla of having passed on his investment sentiment (which he shared with Holla: he regularly gave Holla investment advice) to the leading share traders Visscher and Les Paul. Velters again became angry with Holla.[97] And no wonder, for if this was true, Velters' chances of getting high returns on his trades would diminish noticeably. Visscher and Les Paul were among Velters' main competitors; Velters definitely did not want them to be informed about his investment sentiment.[98]

Velters was lucky to be not fully dependent on Holla's information. He also ensured that he had always access to the information available on the Middelburg exchange. What he tried to do with this information was quite sophisticated. The shares traded on the Amsterdam and Middelburg exchanges were technically identical and although they did not trade at the same price the price pattern was similar: the prices in both cities incorporated the same information and expectations about the profitability of the company.[99] So, Velters constantly tried to assess whether VOC shares were relatively cheaper in one of the two cities – he performed a form of arbitrage. On 26 July 1675, for example, he wrote to Mark Fletcher – his first Middelburg correspondent of whom very little is known, except that he went bankrupt in 1709[100] – that the Amsterdam and Middelburg share prices diverged widely: they could make a profit out of this![101]

The strategy of Velters and his Middelburg trading partners was fairly simple: they exchanged information to try to get an information advantage in either of the two trading cities. So, when Velters received, for instance, detailed information about the return fleet cargo and the diplomatic relations with China and Japan in Septem-

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[97] Velters to Holla, 11 August 1689, SAA, Velters, inv. nr. 4, fo. 120.

[98] To reduce the impact of their trades, prominent share traders tried to hide their trading sentiment from the market. In November 1692, for example, Velters ordered broker Henry Momber to perform a transaction without mentioning his name. He asked him if he could use his own name or perhaps – with his consent – his father-in-law's: Velters to Henry Momber, 6 June 1692, SAA, Velters, inv. nr. 4, fo. 197.

[99] See, for an analysis of the price differences between the various VOC chambers, chapter 2 section Divergent developments: Amsterdam and peripheral markets on page 68 ff. and, particularly, Figure 2.12 on page 87.

[100] Announcement of the Middelburg chamber of insolvent estates, *Amsterdamsche donderdaegse courant*, nr. 1709-128, SAA, PIG, inv. nr. 685a. Fletcher's name obviously suggests that he came originally from England.

[101] Velters to Fletcher, 26 July 1675, SAA, Velters, inv. nr. 2, fo. 57. See also Velters to Fletcher, 25 August 1671, SAA, Velters, inv. nr. 1, fo. 220.

ber 1676, he instantly shared it with Pierre Macaré[102], the second merchant in Middelburg with whom he frequently corresponded, hoping that this information would not yet have become publicly available there, allowing Macaré to make a profit.[103] Naturally, the two merchants always informed the other about the share price in their city of origin.

This strategy could work, but involved high risks. The Amsterdam and Middelburg shares were not exchangeable, so they had to guess whether the share prices diverged or whether they were actually equal. The tensions this provoked were palpable in the correspondence, all the more so since Velters and his Middelburg correspondents really traded on each other's accounts. They gave each other limit orders, e.g. 'try to sell a *f* 3,000 for at least 450%', but also occasionally carte blanche.[104] Velters had replaced Fletcher with the seemingly more reputable merchant Macaré in September 1675, but the high risks (and at times possibly also major losses) involved in their trading relationship soon led to insurmountable frictions: Velters accused Macaré of making bad transactions and providing poor quality information.[105]

Velters was definitely not the only share trader who pursued this strategy of performing trades on more than one market.[106] The sources show that Isaac Semach Ferro performed the Middelburg transactions for a large number of (very prominent)

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[102] Macaré came from an Antwerp family of merchants. He traded principally in wine. In 1672, his wealth was assessed at *f* 21,000: A.C. Macaré, 'Macaré', *Kronieken* 2 (1993) 57-92.

[103] Velters wrote that the proceeds of the last three ships of the return fleet would amount to 13-14 *'tonnen gouds'*, or *f* 1,300,000 – 1,400,000. This would no doubt give the company directors cause to announce a high dividend. Additionally, the monarchs of Canton and Japan were well-disposed toward trading with the VOC. Velters to Macaré, 25 September 1676, SAA, Velters, inv. nr. 2, fo. 514.

[104] Velters wrote to Macaré on 15 December 1676, for example, that he deemed it too hazardous to sell shares on the forward market at that time. The forward share trade, he added, was a high-risk trade and he was hesitant to take a large position on someone else's account: Velters to Macaré, 15 December 1676, SAA, Velters, inv. nr. 3, fo. 48.

[105] Velters complained to Macaré's father about his son's provision of low-quality information and service: Velters to Pieter Macaré senior, 31 August 1677, SAA, Velters, inv. nr. 3, fo. 262. Quarrelsome correspondence between Velters and Macaré junior from around the same date: 20 August 1677, SAA, Velters, inv. nr. 3, fo. 257; 31 August 1677, SAA, Velters, inv. nr. 3, fo. 263; 15 October 1677, SAA, Velters, inv. nr. 3, fo. 297. The conflict proved the end of their correspondence. Some ten years later, Macaré tried to restore their good relation, but Velters replied that they should first settle their unpaid letters of exchange: Velters to Macaré, 16 April 1688, SAA, Velters, inv. nr. 4, fo. 83.

[106] All traders whose financial records I have used owned shares in different chambers: Anthony Thijs owned shares in Middelburg and Enkhuizen: BT, inv. nr. 113. Louis Trip transferred shares in the Middelburg chamber in 1660 and 1661, in the Enkhuizen chamber in 1667 and in the Hoorn chamber in 1681: SAA, Merchants' accounts, inv. nr. 39, fo. 53, 82; inv. nr. 57, fo. 82. Elisabeth Coymans and – to a lesser extent – her son Joseph Deutz owned (and occasionally transferred) shares in the Enkhuizen chamber from 1649 until 1685: SAA, Deutz, inv. nr. 276, fo. 11; inv. nr. 294, fo. 94; inv. nr. 295, fo. 14. The correspondence of Jeronimus Velters gives evidence that he traded shares in Middelburg, particularly in the period 1671-2: SAA, Velters, inv. nr. 1. Manuel Levy Duarte and Jacob Athias performed six share transactions in Middelburg on account of Olympe Mancini, the Countess of Soissons, in 1680 and 1681: SAA, PIG, inv. nr. 858, fo. 170, 174.

Portuguese Jews from Amsterdam, who apparently all traded on the Middelburg exchange – possibly also to profit from information lags.[107] Semach Ferro, who became the Spanish consul in the same city in the 1690s, was obviously the main Middelburg contact for the Portuguese Jewish community, but he did not restrict his services to his co-religionists; when Velters needed a new authorized agent in Middelburg, after he had lost his confidence in his share-trading partners there, he sought the advice of Samuel Gomes Cotinho and was referred to Semach Ferro.[108] Velters and Semach Ferro did not belong to the same religious community; they did not even know each other before Velters gave him power of attorney. Semach Ferro thus provided professional services for anyone who wanted to perform share transactions in Middelburg.

Clearly, the provision of information was vital for the active share traders. Velters, for example, organized his day around the postal services: he did not go to the exchange until the post had been delivered and quickly finished his letters when he knew that the post chaise was about to leave.[109] Moreover, he made sure – just as De la Vega advised his readers – that his information network spanned the globe: Velters asked his relative Balthasar Cosett, who went to the East Indies as supercargo in 1687, to send him information on a very regular basis. Velters told him that reliable information was of the utmost importance to him and requested him to describe the state of the company's trade in great detail, because he had considerable personal interest in it. He emphasized that there were no excuses for big intervals between two letters: there were plenty of ships destined for the United Provinces and Cosett could also send his letters via England. It is unclear whether Velters profited from this private information channel – the letters he received have not survived – but Cosett probably did his best to satisfy Velters, for he was indebted to him (he had borrowed *f* 4,800 before he left).[110]

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[107] In the 1688 protocol of Amsterdam notary Dirk van der Groe alone, he received power of attorney from David de Pinto, Jacob Nunes Henriques, Moses Nunes Henriques, Manuel de Belmonte, David Gabaij Henriques, Jacob Gabaij Henriques, Abraham Penso, Moses Henriques, Manuel Mendes Flores and Salomon Aberbanel Sousa: SAA, Notaries, inv. nrs. 4131-5.

[108] Jonathan I. Israel, 'The Dutch Republic and its Jews, 1699-1715', in: idem (ed.), *Conflicts of Empires. Spain, the Low Countries and the struggle for world supremacy, 1585-1713* (London 1997), 391-410, there 399. Velters to Semach Ferro, 14 December 1691, SAA, Velters, inv. nr. 4, fo. 155.

[109] In his letter dated 28 November 1676, he apologized to Macaré for the short letter of the day before: he had had to hurry to hand it in for that day's service: Velters to Macaré, 28 November 1676. SAA, Velters, inv. nr. 3, fo. 34. Postal services from The Hague to Amsterdam and vice versa ran twice daily and took 5.5 hours: advertisement in *Courante uyt Italien ende Duytschlandt, &c.*, 23 June 1663 (nr. 25), PA. The Amsterdam-Middelburg service ran daily.

[110] Velters to Balthasar Cosett, 20 December 1687, SAA, Velters, inv. nr. 4, fo. 69; 30 December 1687, SAA, Velters, inv. nr. 4, fo. 70. Interestingly, their correspondence was not cut short instantly once Vel-

Velters did not have a private informant in England, which placed him at a disadvantage to other traders. He did receive the English news, but not at first-hand; he heard it on the exchange.[111] Hence he received it too late to realize a profit with it on the exchange. Velters knew this all too well; on 28 August 1688, in the midst of the 1688 crash, he wrote to Holla that all traders on the exchange had the exact same information as he had, so he could not make profitable transactions.[112]

Dias Henriques, on the contrary, received the main part of his information from Sephardic correspondents in various European countries. In July 1697, for example, he reported in a single letter about news he had received from correspondents in Paris, Porto and London. His London informants had spoken to Dutch seamen in Bristol and London who had just arrived from Asia. Dias Henriques had also received information from a man who had sailed as a passenger on a Portuguese ship. He had reported that French and English ships had attacked several Dutch ships in the Bay of Bengal, but the ships were undamaged. Dias Henriques immediately decided to buy shares on the basis of this information.[113] Levy Duarte's information network was not confined to places with large Sephardic communities, however. He also had a private informant in the East Indies.[114]

Which information network was better? A comparison of the returns realized by Velters and Dias Henriques would be the best way to find out, but my data on their transactions are very incomplete. Velters' information exchange with Middelburg and the arbitrage possibilities ensuing from it look sophisticated, but his ongoing quarrels with Fletcher and Macaré suggest that it did not yield the returns he had hoped for. His access to governmental bodies, on the other hand, must have given him private information that he could use on the exchange. Velters certainly had an information advantage on days when he had private information and when there was no English news. Dias Henriques, on the other hand, could probably have made quick profits on days when he received news from his informants in England and other parts

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ters became a company director: Velters to Cosett, 12 December 1693, SAA, Velters, inv. nr. 4, fo. 251. Velters also had a correspondent, named Willem Juijst, in the West Indies: Velters to Willem Juijst, 6 October 1683, SAA, Velters, inv. nr. 3, fo. 498-500.

[111] Velters to Holla, 25 July 1687, SAA, Velters, inv. nr. 4, fo. 59.

[112] E.g. Velters to Holla, 28 August 1688, SAA, Velters, inv. nr. 4, fo. 89.

[113] Dias Henriques to Levy Duarte, 31 July 1697, SAA, PIG, inv. nr. 681a, pp. 643-5. Another example of first-hand information from Portugal about the cargo of the VOC return fleet: Dias Henriques to Levy Duarte, 22 November 1691, SAA, PIG, inv. nr. 677, pp. 883-5. More news from England regarding the Dutch return fleet: Dias Henriques to Levy Duarte, 31 October 1697, SAA, PIG, inv. nr. 681, pp. 405-7 and 12 February 1698, SAA, PIG, inv. nr. 681b, p. 121.

[114] Levy Duarte to unknown, shortly after 11 May 1685, SAA, PIG, inv. nr. 679, pp. 489-90.

of Europe. He moreover benefited from news shared by his co-religionists. So, in the end, the better information network was the network that provided information with the largest impact on the share price.

It is undoubtedly true, however, that the information networks of Velters and Levy Duarte put them in an advantageous position over counterparts without access to similar networks. The latter traders had to make do with the information that was publicly available on the exchange or in newspapers. This would have been insufficient for active speculators – even though Amsterdam had developed into the newspaper centre of Europe during the seventeenth century, with several titles regularly giving information about arrivals and departures of ships, sometimes also stating details about their cargo.[115] But for speculators, the newspaper content had negligible informational value; the news had become outdated before it reached them.

An example from the *Ordinaris Dingsdaeghsche Courant*, an Amsterdam-based newspaper published by Johannes van Ravesteyn, illustrates my point. The 27 September 1667 issue contained news from The Hague, dated 25 September. It stated that a number of sailors, who had arrived in the Maas estuary shortly before, had come into town on the 24th, bringing the news that they had parted from nine VOC ships off the English coast on September 9. They reported that the return fleet was in good condition, but it had originally consisted of twelve ships; three of them had strayed off in dense fog somewhere east of the Cape.[116] This was irrefutably interesting information for the share traders, but they did not need a newspaper to obtain it; they could have obtained it earlier. Private letters travelled from The Hague to Amsterdam in a day's time. Hence, this news had probably reached the market already by the 25th or the 26th at the latest – at least a day before the newspaper came out. It did not take long for news to become public once it had reached the Exchange; an Exchange employee wrote the news of general interest on a slate[117] and the merchants of course talked to each other about it.

The Amsterdam-based publishers seem to have been aware that share traders did not use their newspapers to obtain information regarding the share trade: they hardly ever mentioned share price data. The only newspapers that occasionally quoted the most recent share price came from The Hague – newspapers with a read-

[115] Dahl, 'Amsterdam: earliest newspaper centre of Western Europe', 163.
[116] *Ordinaris Dingsdaeghsche Courant*, 27 September 1667 (nr. 39), PA, microfilm SP119/86.
[117] Velters to Holla, 25 March 1689, SAA, Velters, inv. nr. 4, fo. 110.

ership that did not frequent the exchange in Amsterdam. But they did so at irregular intervals; apparently not aiming to provide financial information, but rather to contextualize for example the news about the Second Anglo-Dutch War by showing its effects on the share trade.[118]

Share traders had to respond quickly to news that could influence the share price. The examples from the Velters correspondence have shown that it was only a matter of hours before new information got incorporated into the share price. Active share traders therefore had to build an information network that would occasionally give them an informational advantage over other share traders. As a result, newspapers frequently received their news from merchants, rather than the other way around.[119]

What is more, the pace at which the share price moved provides an explanation for the fact that share prices were not included in Amsterdam's commercial and financial newspapers until the mid-eighteenth century.[120] The foremost price current, *Cours der Koopmanschappen tot Amsterdam* appeared only on a weekly basis in the period 1585-1775.[121] This price current thus always published outdated price data. The prices of the commodities listed in the *Cours*, as well as the exchange rates for international currency, fluctuated less dramatically and, more importantly, these prices were also of interest to merchants outside Amsterdam; the *Cours* was also published in Italian, English and French.[122] The Amsterdam commodity market was an international market and the *Cours* provided foreign merchants with necessary price information, whereas the market for VOC shares was to a large extent a local market. To be sure, the odd foreign share trader hired an Amsterdam exchange agent to perform his trades.[123] So, in order to participate in the market for VOC shares, a trader either needed a sophisticated information network, preferably with correspondents spread

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[118] E.g. *Haegsche Dijnsdaeghse/Donderdaegsche/Vrydaegsche Post-Tydingen*, 1666 (nrs. 24, 54, 66, 83), 1667 (nrs. 17, 20, 24), PA, microfilms SP119/36, SP119/38).

[119] E.g. *Oprechte Donderdagse Rotterdamse Zee- en Post-tijdingen*, 28 July 1667 (nr. 60), PA, microfilm SP119/81. This issue mentioned the preparations for the peace treaty that ended the Second Anglo-Dutch War. The newspaper had derived its information from the business letters several merchants had received from London.

[120] There are examples of pre-printed forms, probably used by brokers, listing all the securities that were traded on the Amsterdam exchange dating from the 1720s. The spaces for price quotes were left open. The first printed list of stock prices dates from 1747. Neal, 'The rise of a financial press', 172-4.

[121] McCusker and Gravesteijn, *The beginnings of commercial and financial journalism*, chapter 1.

[122] Ibidem, 49.

[123] E.g. Olympe Mancine, the Countess of Soissons, from Brussels and Luis Alvares from Paris/London who gave their trading orders to Manuel Levy Duarte and Jacob Athias: Samuel, 'Manuel Levy Duarte', 19-20.

over the Dutch Republic, Europe and the East Indies, or he could perform his trades through a broker or exchange agent. Manuel Levy Duarte and Jacob Athias, who acted as exchange agents during the 1680s, charged a *f* 30 commission on every pair of transaction and counter-transaction in VOC shares, which shows that traders without access to an information network were willing to pay a high fee (five times the regular brokers' commission) to be able to share in the information advantage.[124] This also suggests that regular brokers merely brought traders together, probably giving information about a possible counterparty's reputation; they did not provide the information that could lead to profitable transactions.

Conclusions

It was definitely inconvenient that the VOC did not make its accounts public. However, as this chapter has shown, this did not pose an insurmountable problem for the share traders. They made do with the dividend announcements and information they received from other sources. The active traders of the late seventeenth century built private information networks that kept them up to date of the latest information. They could make the short-term profits they were aiming at if they received new information slightly earlier than their main competitors. Consequently, speculative trade became the domain of (semi-)professional traders who made great efforts to gather the latest information. Less active traders could not keep up with these (semi-)professionals, but they were lucky that due to the high trading activity of the speculators, the share price always reflected the most recent news; they could trust the share price to be 'correct'. Newspapers did publish relevant information for the share trade, but the news from this source always reached the share traders too late – traders with private information networks would already have reaped the profits. The printed news media contributed in no way to the increased enthusiasm for the share trade after 1640.

Things were different in the first decade of the seventeenth century. Many of the early investors still awaited the liquidation of the company in 1612 or 1623 at the latest. For them, it was not necessary to get information with the same level of detail that Jeronimus Velters or Manuel Levy Duarte needed. They simply hoped that the spice trade would eventually prove profitable. Secondly, many traders of the early years invested in the VOC to support the conquests of the Dutch Republic in the East

[124] SAA, PIG, inv. nrs. 687-8.

Indies. They of course hoped to gain a profit on their investment, but it was equally important for them that the young Dutch Republic was able to compete with its European counterparts. They were interested in news on the fortunes of the Dutch in the East Indies, but did not need to get it first-hand to be able to trade on it. The market of the first decade was not yet the market for professional traders it would later become.

Presumably, the groups with the best inside information were the company directors and chief participants of the VOC; they had access to the company accounts and to the internal correspondence with the company's East India branch. However, as the following example will show, it is impossible to analyze to what extent they profited from their position. Jeronimus Velters became a company director for the Amsterdam chamber in June 1694. He had discontinued his share-trade-specific correspondence some five years earlier (maybe the quarrelsome nature of the letters annoyed him too much), but started anew as soon as he had taken up the directorship – although at a lower frequency.[125] On 29 July, after a month in office, he bought shares with a nominal value of *f* 15,000 on the forward market.[126] It was not forbidden for company directors to trade shares, as long as they held on to a share capital of *f* 6,000 – really the only requirement to become or remain eligible for a company directorship. But Velters' activity on the forward market is definitely a bit suspicious. Unsurprisingly, then, he did not perform these transactions himself – he asked Jan de Wilhelm and Jacob Gabay Henriques to do them for him. Trying to reconstruct the directors' trades is therefore pointless: they were smart enough to ask someone else to perform their trades. And it is clear why: they did not want to be accused of enriching themselves at the expense of other shareholders and thus tried to prevent other share traders from observing their trades. Otherwise, no one would ever have bought, for example, a forward from a company director – the informational value of company directors' transactions was simply too high.

The share market benefited from Amsterdam being an important centre of information in so far as this helped traders to build and maintain their information networks. Amsterdam's position as a major trading port in international commerce made information from abroad quickly available on the exchange. Regular shipping traffic between England and the Dutch Republic, for example, made it possible for

[125] Please note that he had remained active on the share market in the intermediate years.
[126] Note in Velters' letter book, 24 July 1694: SAA, Velters, inv. nr. 4, fo. 331.

traders to receive news from the Dutch East Indies before the VOC return fleet arrived: they asked their informants to send their letters on English fleets to Europe, hoping that they would thus receive the news before it became public information on the exchange. The Portuguese Jews, lastly, did not build their information network to use it specifically for the share trade. The network of the Diaspora already existed before the Portuguese Jews started to participate in the share trade and the traders subsequently gladly used it. Hence, to paraphrase Smith, Amsterdam being an information exchange contributed to the modernization of finance.

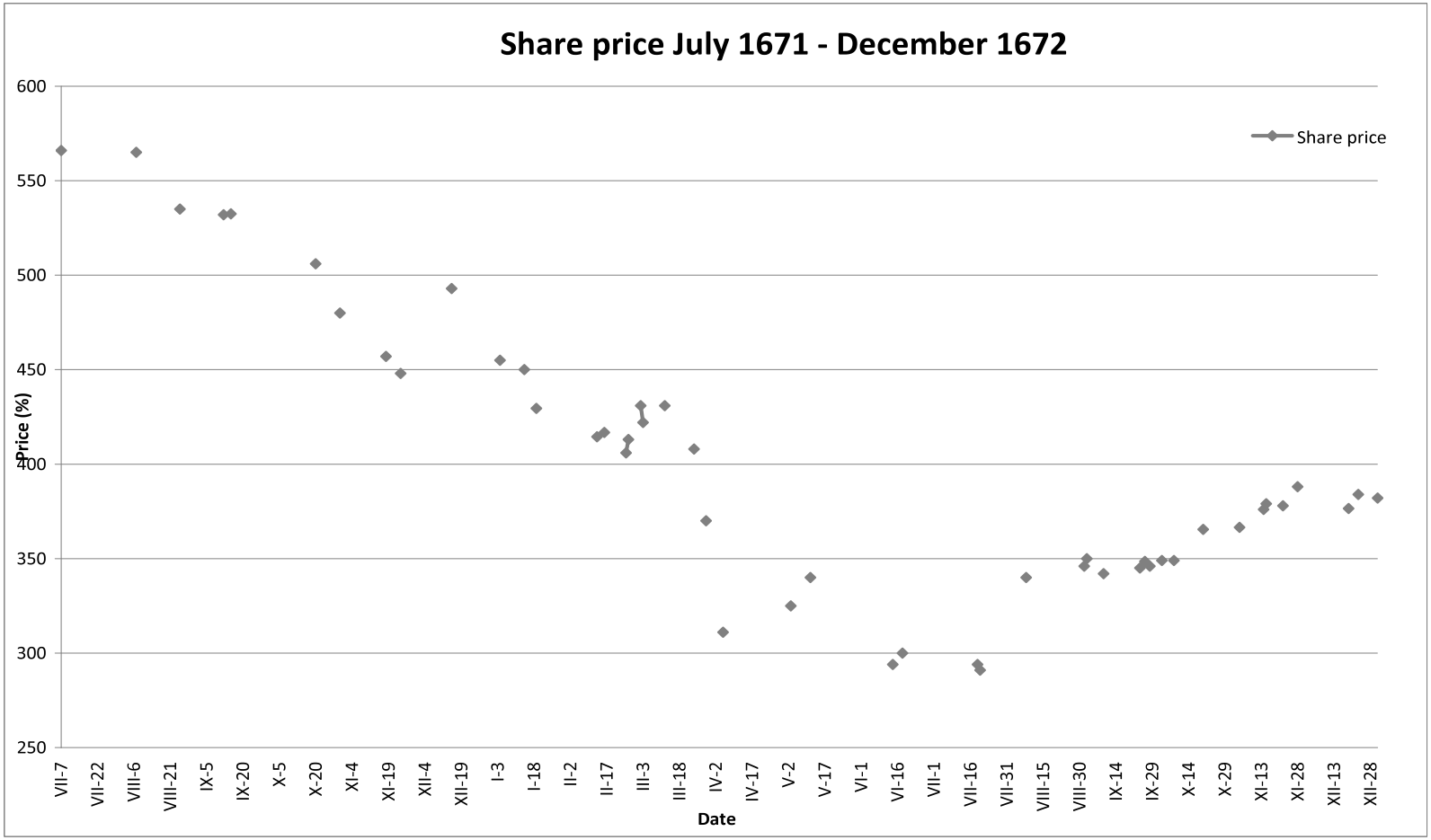

Figure 5.1 VOC share price, 7 July 1671 – 31 December 1672
Number of observations: 55. Sources: SAA, Velters, inv. nr. 1; SAA, Deutz, inv. nr. 293; SAA, Merchants' accounts, inv. nr. 40; SAA, Notaries, inv. nrs. 2238-40.

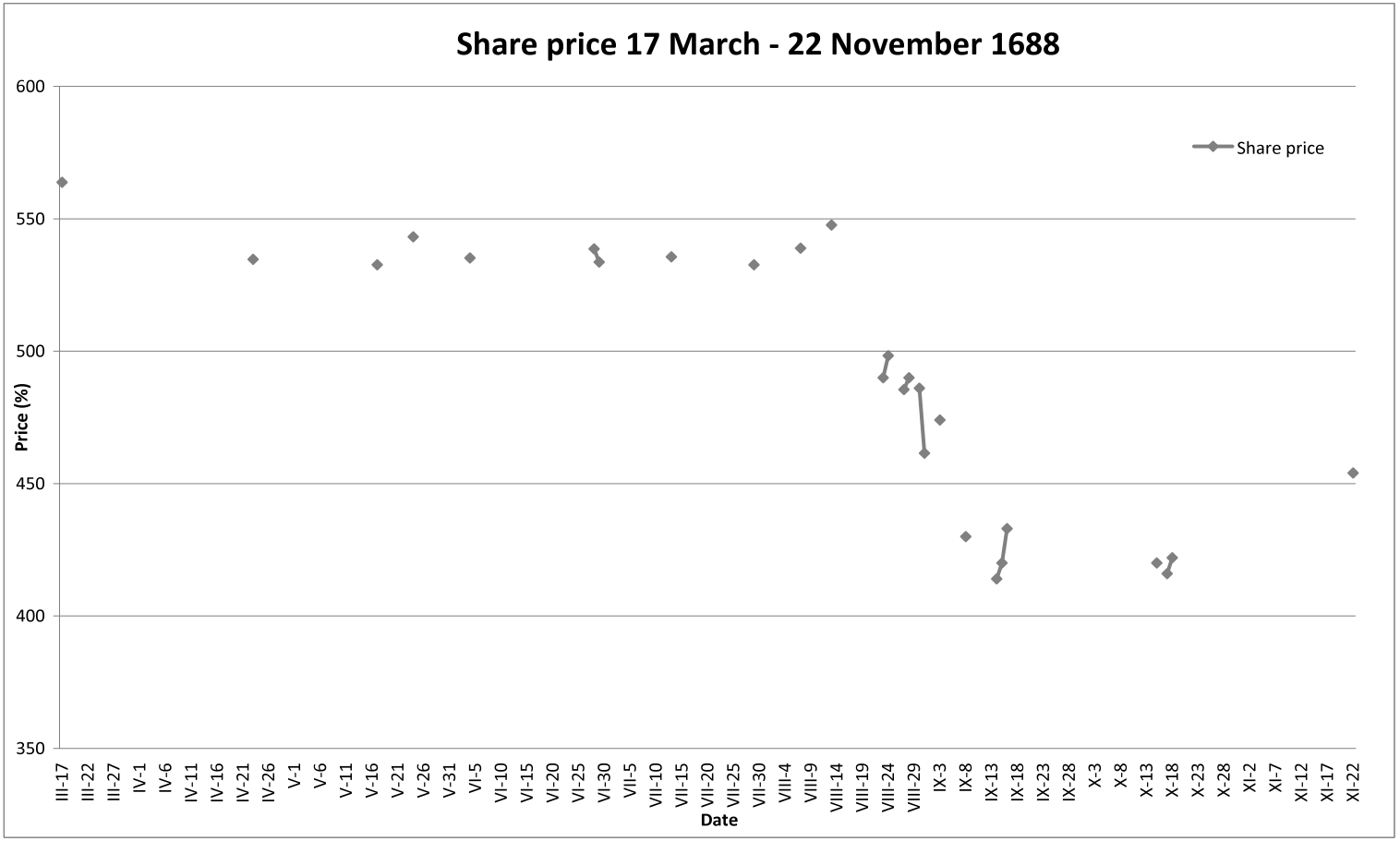

Figure 5.2 VOC share price, 6 January 1688 – 22 November 1688
Number of observations: 35. Sources: SAA, Velters, inv. nr. 4; SAA, Notaries, inv. nrs. 4131-6; Israel, 'The Amsterdam financial crash of 1688'. Please note that the data from Israel's article have been corrected for the dividend distribution of April 15 (33 1/3% in cash) to fit in with the other data.

CONCLUSIONS

The history of the secondary market for VOC shares forms an important chapter in financial history. In the period 1630-50, this market became the first modern securities market. The increase in trading activity on the spot and especially on the derivatives market was the key event. The market became liquid and price discovery occurred because of the interaction between traders. As a result, investors could now, for the first time in history, invest their money at low cost and for short periods of time, without the need for endless negotiations about terms and conditions of a contract and without fear that it would be difficult to sell off the investment if need arose. Furthermore, the market enabled traders to manage and control their financial risks and the structure of the derivatives market allowed market participants to monitor their counterparties. The market as a whole thus became better at providing the core functions of financial systems.[1]

Part of the Amsterdam securities market can even be seen as what I tentatively called in the title and introduction of this book 'the world's first stock exchange'. The illegal character of much of the derivatives trade required the traders to organize themselves in trading clubs. Within the confines of these clubs, traders could monitor each other's behavior. Furthermore, the clubs created an environment in which the participants cared highly about their reputations. This system could function efficiently only if access to the clubs was restricted to frequent and approved traders, who participated in the clubs for the sole purpose of trading shares. The clubs thus became predecessors of modern stock exchanges where only official stockbrokers are allowed to trade.

The downside of organizing the derivatives market in trading clubs was that this part of the market became a market in which only (semi-)professional traders could participate. It was inaccessible for people who did not belong to their clique and hence it would have been particularly difficult, if not impossible, for people from, say, outside Amsterdam, to participate in the derivatives market. In the second half of the seventeenth century, the market thus consisted of a publicly accessible part, where investors could invest their money in VOC shares and where brokers and market makers were present to help them make a deal, and a separate market where (semi-)

[1] Levine, 'Finance and growth', 869-70.

professional traders could play their private 'game'. Not everybody could thus benefit from the functions provided by the derivatives market, but if outsiders really wanted to participate in the derivatives market, they could hire an exchange agent to perform transactions on their account. Naturally, the costs of trading via an agent were higher than the costs of performing transactions personally or asking a broker to intermediate, but agents gave access to the trading clubs. This advantage could offset the extra transaction costs.

Although the first modern securities market emerged in the field of private finance, the public authorities of the Dutch Republic did play a considerable role in the first decades of its development. Most importantly, the States General decided on the company charter and its prolongations; the capital stock of the VOC became fixed only because the authorities repeatedly renewed the VOC charter. The legal institutions, moreover, aided the development of the market by making clear – at an early stage in the seventeenth century – how the courts interpreted the rules, thus taking away any uncertainty the market participants could have. The public authorities thus created a framework within which the market could develop.

The company directors made one important contribution to the emergence of the market: they made trading feasible by formulating clear rules for share ownership and transfer of ownership. The traders themselves initiated all remaining developments that took place during the seventeenth century; they were constantly searching for ways to minimize transaction costs. Christoffel and Jan Raphoen, for example, contributed enormously to the development of the market with their efforts to provide liquidity for non-standard share denominations. The standardization that was the result of their market-maker services brought transaction costs down, because it increased the market's liquidity; traders could more easily find counterparties for their transactions.

The development of the derivatives market provides even more examples of trader-initiated institutional developments that contributed to the transition into a modern securities market. The traders themselves formulated the contracts of the various derivatives transactions that were in use on the market. Moreover, they themselves took care of the enforcement of those derivatives transactions that were unenforceable by law by creating sub-markets within the secondary market for VOC shares. These markets were relatively small, especially when compared to commodities markets, and the transactions that were dealt on them could be characterized as high-risk

and complex. This combination of characteristics spurred the developments on the sub-markets: traders wanted to make use of the derivatives market because of the financial functions it provided at low cost, but due to the high risk and complexity, institutional developments were required. It was these sub-markets of the *rescontre* and the trading clubs that historians have marveled at; this was the part of the securities market that looked most 'modern'. Most interestingly, and this is what De la Vega's observation that the share trade 'became a game out of necessity', quoted in the Introduction, referred to: the traders established it out of necessity.

The self-regulation of the parts of the trade that were illegal by law worked pretty well, but this book must not be regarded as a plea for self-regulation as a means to create better functioning financial markets in the present-day world. The derivative transactions used by the seventeenth-century traders – short-selling, straddles and repos, to name but a few examples – might give the impression that they were highly advanced financial techniques and the seventeenth-century world probably thought so too, but these transactions are only child's play in comparison with, for example, today's hybrid securities and collateralized debt obligations, whose complexity often disguises the underlying assets. What is more, the number of parties involved in today's derivatives markets, originating from all parts of the world, could never be regulated by a simple trading system of the kind the Amsterdam share traders of the seventeenth century devised. The history of the seventeenth-century share market does offer an interesting parallel for today's attempts to regulate financial markets, however. It shows how traders of financial assets, in their search for ways to minimize transaction costs, have always tried to find loopholes in the law and searched for ways to by-pass official regulations.

Finally, after an extensive analysis of the development of the secondary market for VOC shares, it is important to review the wider significance of this market for the economy of the Dutch Republic in the seventeenth century and for economic development in later ages. A critique on the market, occasionally voiced in the seventeenth century, was that the participants of the securities market wasted time buying and selling shares – a mere 'game' instead of a respectable trade – whereas they could have better used their time for commercial trade that would benefit not only their personal financial situation, but also the economy as a whole.[2] The critics were mostly right; the secondary market for VOC shares did not directly contribute to the economy of the

[2] Most notably, Muys van Holy, *Middelen en motiven*, 8.

Dutch Republic. After the subscription of 1602, and – to a lesser extent – the subscription to the WIC in 1621 and, again, in 1675, the securities market did not mobilize capital.

What is more, as the examples in this book – particularly the case of Jeronimus Velters – have shown, active participation in the trade in VOC shares did indeed take up a lot of time. While Velters was a wealthy man who had already made his contribution to the growth of the Dutch economy, it is no doubt true that there were many other traders who could have contributed more to the economy had the share trade not taken up such a great deal of their time. Individual investors certainly benefited from the market, however. It enabled them to invest their money in a (most of the time) profitable way. They could do so at low cost and it was always possible to liquidate their investment. Moreover, they could benefit from the risk-management possibilities provided by the market. The market thus increased the wealth of individual investors and hence also contributed, indirectly, to the economy of the Dutch Republic.

However, the economy as a whole could certainly have benefitted more from the presence of a highly developed securities market. The market framework and the large pool of ready investors could relatively easily have been used by new companies to issue capital stock or by the government to issue debt. The market could then have performed the function of bridging the gap between long-term capital needs of companies and governments and short-term investment horizons of investors on a larger scale – i.e. not only for the VOC. It could then, moreover, have contributed to allocating the available capital in the Dutch Republic in an efficient way. Such did not happen in the seventeenth-century Dutch Republic, however. Neither the government, nor private companies recognized the possible advantages of using the market for their capital requirements.

The main reason for this, in the case of companies, seems to be that the capital requirements were generally too low to consider issuing public stock. It is also possible that the government refused to grant charters to new companies, which was necessary to obtain joint-stock status, but very little is known about this for the seventeenth century. Gelderblom, De Jong and Jonker have moreover argued that the example of the VOC, where the government forced the company to also pursue ambitious military goals instead of only commercial goals, was a rather uninviting prospect for other companies; new companies decided not to request official joint-stock status, because

they feared that the government would also demand a large say in their objectives, which might deter investors from subscribing money.[3] I am not sure whether this reasoning is correct. The investors of the VOC were not naive, as chapter 5 has shown. The investors of the earliest decades knew perfectly well that the VOC would also pursue military goals and this did not discourage them from investing in the company. To be sure, they even actively supported the military efforts to oust European enemies from the East Indies. It is true, however, that investments in the company stock of the WIC were disappointing, to say the least, which might have been a signal that investors were unhappy with the prospect that their money would be used for the pursuance of government goals. So perhaps the VOC was a fortunate coincidence; investors were willing to support the grand goals of the Dutch Republic in the start-up phase, and at about the time investors started being unhappy with the government say in the company, the VOC started to make considerable profits.

The government itself, on the other hand, could have used the structure of the securities market to consolidate its debt, but here the decentralized government of the Dutch Republic obstructed wider use of the market. The market was, for example, not easily accessible for the States of Groningen to issue their provincial debt. Moreover, it would have been hard to replace the system of provincial receivers-general, the officials responsible for issuing government debt, who were generally very influential persons.

The power of the securities market was thus not fully explored in the Dutch Republic. However, economies of later ages undoubtedly benefited from the experience of the Amsterdam market. New markets for corporate equity could be established relatively easily – they could be shaped after the example of the Amsterdam market. These markets could optimize the organization of the Amsterdam market, without the need to develop from scratch. The experience of the market for VOC shares thus enabled these economies of later ages to grow faster than what would have been possible if this market had not existed.

Eighteenth-century London was the first to reap the benefits of the experience the Dutch. What is more, the London securities market quickly outperformed its Amsterdam counterpart: more companies were traded and the government also used the market structure to finance its debt. In my view, the English financial markets could reach their high stage of development so quickly, because they could build on Amster-

[3] Oscar Gelderblom, Abe de Jong and Joost Jonker, 'An admiralty for Asia'.

dam's achievements. London simply continued developing the market from the point that had been reached in Amsterdam. The foundations of London's market, like those of today's financial markets, were laid in seventeenth-century Amsterdam.

EPILOGUE –
REASSESSING *CONFUSIÓN DE CONFUSIONES*

Josseph de la Vega's *Confusión de confusiones* is a special book. It consists of four fictitious dialogues between a merchant, a philosopher and a shareholder. The merchant and the philosopher are interested in the share trade and the shareholder explains to them how the trade works. Written in Amsterdam in 1688, it is the world's first treatise on the stock-exchange business. As such, it has continually attracted attention from scholars. New editions, often marketed towards investors who are active on today's financial markets, appear regularly. Moreover, *Confusión* was selected for the 'basic library' of texts that shaped Dutch cultural history – a remarkable achievement for a work that had originally been written in Spanish.[1]

Confusión is also a mysterious work: very little is known about its author, it is written in a form of Spanish that must have looked archaic even to seventeenth-century readers and its composition is conspicuous, to say the least – about two-thirds of the book is devoted to biblical and mythological excursions. It is my aim to give a new interpretation of the original purpose of *Confusión* in this epilogue.

Several scholars have advanced theories on the purpose with which De la Vega wrote his remarkable book. Smith, in his introduction to the Dutch translation of *Confusión*, argued that it might have been used as a manual for people who were thinking about starting to participate in the stock-exchange business. The manual would then have principally been aimed at fellow Sephardic Jews, as *Confusión* was written in Spanish. Dissemination of the contents of *Confusión* among the Sephardic community in London might even have sped up the transfer of financial knowledge from Amsterdam to London. Smith noted, moreover, that there are indications that De la Vega was planning to have the book translated into French as well, which – if true – would be a strong argument for the manual-interpretation.[2] No contemporary copies in languages other than Spanish have remained, however. To be sure, only five

[1] As such, its full text has been made available on the Internet:
http://www.dbnl.org/tekst/vega002conf01_01/
[2] M.F.J. Smith, 'Inleiding', in: Josseph Penso de la Vega, *Confusión de confusiones* (1688), M.F.J. Smith (ed.) (The Hague 1939) 1-47.

copies of the original Spanish edition of 1688 survive in libraries around the world.[3] The fact that so few copies survive makes it hardly credible that *Confusión* was used as a manual. Also, the book's long-windedness would have made it an impractical manual.

Cardoso and Israel suggested other interpretations of *Confusión*. According to Cardoso, De la Vega originally planned to write a manual, but slightly changed the aim of the book during the writing, because his own lack of success as a share trader reduced the persuasiveness of his account. He therefore used the book to demonstrate that 'despite the inner or potential risks and dangers of financial operations, the dealings at the stock exchange were worth pursuing'.[4] Israel is the only scholar who has repudiated the manual explanation altogether. He argued that the Jewish community of Amsterdam had to deal with a stream of (mildly) anti-Semitic propaganda in 1688. The activities of the Jews on the share market were a recurring theme in these texts. The purpose of *Confusión*, according to Israel, was to assist the Sephardic community in dealing with the negative attention. *Confusión* provided a survey of the positive and negative aspects of the Jewish activities on the stock exchange and thus helped its Sephardic readers to reappraise their own behavior.[5]

My analysis of the workings of the seventeenth-century securities market allows for a reassessment of the contents of *Confusión*. I contend that De la Vega's aim was to write a vivid account about a subject that attracted a great deal of attention at the time. The main purpose was to entertain its readership. De la Vega's treatment of the stock-exchange business reveals that he was well-informed about it, but I doubt that he was a frequent share trader himself. First of all, I have not come across his name in primary sources. The trading-club ledgers of Jacob Athias and Manuel Levy Duarte would be the logical place to find a reference to De la Vega: they list the names of a large number of Sephardic traders and date from the mid-1680s, shortly before De la Vega wrote his book.[6] De la Vega's name does not appear, however.

Moreover, the price data in *Confusión* are questionable; De la Vega's price of 365% for late August, 1688, stands in stark contrast to the lowest price for that month quoted by Jeronimus Velters: 463%.[7] Finally, De la Vega's treatment of some specific

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[3] José Luís Cardoso, '*Confusion de confusiones*: ethics and options on seventeenth-century stock exchange markets', *Financial History Review* 9 (2002) 109-123, there 100 (in footnote).
[4] Ibidem 123.
[5] Jonathan I. Israel, 'Een merkwaardig literair werk en de Amsterdamse effectenmarkt in 1688. Joseph Penso de la Vega's Confusión de confusiones', *De zeventiende eeuw* 6 (1990) 159-165.
[6] SAA, PIG, inv. nrs. 687-8.
[7] See chapter 5, section Market reactions to information, on page 156 ff.

aspects of the market is hardly convincing. This is most apparent in his analysis of the ban on short-selling and, following from it, the possibility to legally renege on forward transactions. He noted correctly that it was possible to renege on a forward deal if the seller did not actually own the underlying asset of the contract, but failed in his attempt to elaborate on the implications of the ban. He was right to say that sellers could also use the ban to let the court declare their sales null and void, but passed over the fact that the seller would then incur a considerable fine. Contrary to De la Vega's belief, sellers would thus generally be less inclined to renege. In the following paragraph, De la Vega tried to assess the implications of the ban on the options trade, but his account gives the impression that he did not understand the principle of the regulation. In my view, traders could ask the court to nullify an option contract if the seller did not own the underlying asset at the time the deal was made and/or during the contract's term. De la Vega, however, remarked only that the rules were ambiguous. Lastly, when he wrote about repos, he made mention of very speculative traders who did not use time accounts. However, as I have shown on page 131, time accounts were hardly ever used at all. De la Vega's account thus gives the impression that his personal experience with stock-market dealings was limited.[8]

However, De la Vega's general overview of the types of transactions used on the market and the risks involved in the various transactions is very good – although his style of writing makes parts of it rather difficult to grasp. He also proved his expertise on the subject by explaining that derivatives were not speculative instruments, but could also be used to mitigate risks. These sections could definitely have been used to teach readers about the basic workings of the securities market, but they form only a minor part of the book. De la Vega paid far more attention to all the various schemes used by collaborating traders who tried to make a profit by playing tricks on other traders. These schemes were no doubt employed by less honorable traders – and it is of course laudable that De la Vega warned potential investors about the tricks that were played on the market – but the amount of attention he paid to tricks and schemes is out of proportion. After having read *Confusión* as a layman in the field of stock-exchange dealings, one would have expected the securities market to be a place of unfair trades rather than a place where financial risks could be managed and controlled. Put another way, *Confusión* is not a very encouraging read.

[8] De la Vega, *Confusión de confusiones*, 195-8 (p. 227-30 in the 1688 edition, p. 24-5 in Kellenbenz' English edition).

In my view, therefore, De la Vega wrote *Confusión* for the entertainment of educated members of the Sephardic community. He took a popular subject – which he (rightly) expected would remain popular for some time –, did ample research to make his story plausible, used fictitious dialogues to make it a lively read, and put in a large amount of drama by emphasizing the dark sides of the share dealings, exaggerating the share price movements, and adding lengthy elaborations on religious and mythological texts. The result was a book that has too much drama and technical shortcomings to qualify it as a manual and too much emphasis on tricks, schemes and comparisons with mythological figures to make Israel's argument convincing that the book was aimed at providing a context for anti-Semitic texts that spoke badly of the financial dealings of the Jews. Those members of the Sephardic community who were experienced in the stock-exchange business and well versed in mythology and the books of the Old Testament probably simply found it a good read. They were personally acquainted with people who made or lost large amounts of money on the stock exchange and this book therefore appealed to them.

SUMMARY (IN DUTCH)

In zeventiende-eeuws Amsterdam werd voor het eerste in de wereldgeschiedenis op grote schaal in aandelen gehandeld. Het ging hierbij om aandelen in de Verenigde Oost-Indische Compagnie (VOC). De aandelenmarkt is uitvoerig beschreven in Josseph de la Vega's veelvuldig aangehaalde *Confusión de confusiones* (1688). Uit dit boek komt een beeld naar voren dat de hele stad bevangen was door de handel in aandelen en dat er ook door velen driftig in allerlei van aandelen afgeleide financiële instrumenten (derivaten, waarvan termijncontracten en opties de belangrijkste waren) gehandeld werd. Er heeft sinds het verschijnen van dit boek altijd een zweem van mysterie rond de zeventiende-eeuwse Amsterdamse aandelenmarkt gehangen; De la Vega's ondoorgrondelijke taalgebruik maakt het lastig om precies te snappen hoe de markt functioneerde en noch De la Vega noch latere historici hebben zich over de vraag gebogen hoe de door De la Vega beschreven markt in minder dan een eeuw tijd een dergelijk niveau van ontwikkeling kon bereiken.

Mijn boek ontrafelt het mysterie van de zeventiende-eeuwse Amsterdamse aandelenmarkt door de ontwikkeling van die markt vanaf de oprichting van de VOC in 1602 tot ruwweg het einde van de zeventiende eeuw te analyseren. Het voornaamste punt dat uit mijn onderzoek naar voren komt is dat de markt zich in de periode 1630-50 ontwikkelde tot een moderne effectenmarkt. De markt kan vanaf die periode modern genoemd worden omdat zij de functies begon te vervullen die effectenmarkten vandaag de dag vervullen. De markt werd in de genoemde periode zeer liquide en er vond constant een proces van *price discovery* plaats. Door de liquiditeit van de markt hoefden handelaars weinig moeite te doen als zij een aandeel wilden kopen of verkopen en zij konden dit ook altijd voor een prijs zeer dicht bij de marktprijs doen. Daarnaast zorgden de vele transacties die op de markt plaatsvonden ervoor dat de marktprijs veel van de onder de handelaars aanwezige informatie bevatte. De transacties zorgden, met andere woorden, voor *price discovery*. Doordat de markt deze belangrijke functies vervulde, was het voor handelaars mogelijk om tegen zeer lage kosten te handelen. Handelaren konden snel en goedkoop hun portofolio aanpassen, wat hen in staat stelde om de mate waarin zij blootgesteld waren aan financiële risico's aan te passen. Het gaat wat ver om te stellen dat de markt hiermee een bijdrage heeft gele-

verd aan het economisch succes de Republiek, maar de gebruikers van de markt hebben zonder meer nut ondervonden van de aanwezigheid van de markt.

Deel I beschrijft de ontwikkeling van de Amsterdamse aandelenmarkt gedurende de zeventiende eeuw. Hoofdstuk 1 geeft een eerste schets met een chronologische bespreking van de voornaamste ontwikkelingen. Vanzelfsprekend wordt begonnen met de kapitaalinschrijving van 1602. Vervolgens komen onderwerpen aan bod als de locaties waar de handel plaatsvond, het ontstaan van de derivatenhandel, de eerste dividendbetalingen, de *corporate governance*-discussie van de jaren 1620, de rol van tussenpersonen en de opkomst van geregelde bijeenkomsten van aandelenhandelaren in *trading clubs*. Hoofdstuk 2 beschrijft enkele langetermijnontwikkelingen zoals de omvang van de handel, het dividendbeleid van de VOC en de koersontwikkeling van het VOC-aandeel gedurende de zeventiende eeuw.

Twee punten uit deze hoofdstukken verdienen het om hier ook kort besproken te worden. Het eerste punt is het ontstaan van een levendige secundaire handel; waarom gebeurde dit wel bij de VOC en niet bij eerdere ondernemingen die aandelen uitgegeven hadden? Het antwoord hierop is betrekkelijk eenvoudig: die eerdere ondernemingen werden zonder uitzondering binnen een aantal jaar weer geliquideerd, waarop de aandeelhouders hun inleg terugkregen. Bij de VOC ging het anders: het octrooi van 1602 was voor een periode van 21 jaar verleend, waarbij bepaald was dat tussentijds (in 1612) de boeken opgemaakt moesten worden. In 1623 werd de VOC niet opgeheven, maar werd een nieuw octrooi verleend. Dit gebeurde nog enkele keren en uiteindelijk heeft de compagnie zonder onderbreking tot 1798 bestaan. Er zijn slechts weinig investeerders die hun geld voor bijna twee eeuwen vast willen hebben staan, dus het is niet meer dan logisch dat de aandeelhouders van de VOC hun aandelen op de secundaire markt gingen verhandelen. Daarbij was door de bewindhebbers al een voorschot op het ontstaan van secundaire handel gegeven door op de eerste pagina van het intekenboek duidelijk te stellen dat aandelen overgedragen konden worden en hoe dit in zijn werk zou gaan.

Het tweede punt is de grote ontwikkeling die de markt doormaakte in de periode 1630-50: het aantal transacties groeide sterk, evenals het aantal transacties per handelaar. De koers steeg aanzienlijk en het Amsterdamse VOC-aandeel werd rond deze tijd structureel duurder dan de aandelen in de vijf andere kamers van de VOC. Aandelen in de kleinere kamers gaven recht op dezelfde uitdelingen als Amsterdamse aandelen en zouden dus logischerwijs tegen dezelfde prijs verhandeld moeten worden.

Ten slotte werd de populatie van handelaren in Amsterdam meer divers, waarbij vooral de participatie van Portugese joden opvalt. Hoe zijn deze ontwikkelingen te verklaren? Ik betoog dat dit komt doordat de markt in deze periode uitgroeide tot de eerste moderne effectenmarkt. Hoe dat in zijn werk ging, is het onderwerp van deel II.

Deel II gaat na hoe de markt zich heeft ontwikkeld tot een moderne effectenmarkt door dieper in te gaan op het functioneren van de markt. Zoals eerder gesteld kan de Amsterdamse markt voor VOC-aandelen een moderne effectenmarkt genoemd worden omdat zij voor liquiditeit en *price discovery* zorgde. De markt kon deze functies uitsluitend vervullen doordat er een groot aantal transacties op de markt plaatsvond. De drie hoofdstukken die samen deel II vormen, analyseren welke ontwikkelingen ervoor gezorgd hebben dat handelaren in de tweede helft van de zeventiende eeuw zo veel transacties gingen uitvoeren.

Hoofdstuk 3 bespreekt de mechanismen die ervoor zorgden dat contracten nagekomen werden. Eerst komen de formele instituties aan bod. Ik betoog op basis van gerechtelijke dossiers dat in de Republiek rond 1630 een stevig juridisch kader voor de aandelenhandel tot stand was gekomen. Dit was van groot belang voor de ontwikkeling van de markt, omdat het juridische zekerheid verschafte voor de handelaren; zij wisten vanaf 1630 precies hoe de rechtbanken oordeelden over verschillende kwesties die zich voor konden doen bij aandelentransacties.

Daarna ga ik in op informele instituties – regels die niet door de wet bekrachtigd worden – die de nakoming van contracten regelden. De markt had informele instituties nodig, omdat een groot deel van de transacties die op de markt plaatsvonden bij de wet verboden was. Meer bepaald ging het hierbij om *short sales*, of 'verkopen in blanco' zoals de zeventiende-eeuwers de transacties noemden waarbij aandelen die niet in bezit zijn van de verkoper verhandeld worden. De beperkte beschikbaarheid en hoge kosten van VOC-aandelen maakten dat termijnhandelaren bij voorkeur in dergelijke fictieve aandelen handelden. Maar door het verbod op *short sales* bracht deze handel een aanmerkelijk extra risico met zich mee: de kopende partij kon de rechtbank verzoeken de transacties ongeldig te verklaren. Er waren dus informele instituties nodig die ervoor zorgden dat termijnkopers hun verplichtingen nakwamen – ook als de koers gedurende de looptijd van hun contracten sterk daalde waardoor zij verlies leden op hun transacties.

Het informele systeem werkte als volgt: de termijnhandel vond grotendeels plaats tijdens speciale bijeenkomsten van handelaars in een van de koffiehuizen of

herbergen in de Kalverstraat en in de maandelijkse *rescontre* – een bijeenkomst waar termijncontracten afgewikkeld werden. Uitsluitend handelaren met een goede staat van dienst werden tot deze bijeenkomsten toegelaten. Handelaren die zich niet aan de regels hielden, werd de toegang ontzegd. Groepsdruk en (dreiging tot) uitsluiting zorgden ervoor dat de handelaren hun contracten nakwamen. Ik stel ten slotte dat het informele mechanisme zo goed kon functioneren doordat er eerst een duidelijk juridisch kader tot stand was gekomen. Door dit juridische kader waren de handelaren zich zeer bewust van de grenzen van de wet. Zij waren zich daardoor ook bewust van de risico's van *short sales* en gebruikten dit risicovolle type transactie alleen als zij wisten dat hun tegenpartij groot belang hechtte aan toegang tot de handelsbijeenkomsten.

In het geval een handelaar twijfelde aan de reputatie van zijn tegenpartij, zocht hij zijn toevlucht in een ander type transactie. Dit is een van de onderwerpen die aan bod komen in hoofdstuk 4. In dit hoofdstuk laat ik zien hoe de evolutie van de derivatenmarkt handelaars in staat stelde om hun risico's te beheersen. Zij konden *counterparty risk*, of het risico dat de tegenpartij in een transactie zijn verplichtingen niet nakomt, verminderen door gebruik te maken van beleningen in plaats van termijncontracten. Een belening, of *repo* (voluit: *repurchase agreement*) in moderne terminologie, bewerkstelligde een identieke verdeling van het economische en juridische eigendom van een aandeel tussen verkoper en koper als een termijncontract. Het grote verschil tussen beide transacties was dat er bij beleningen altijd een echt aandeel gebruikt werd dat in onderpand werd gegeven voor de duur van de transactie; *short selling* was hierdoor onmogelijk. Beleningen kregen dus de voorkeur boven termijncontracten als er een verhoogd risico was dat de koper niet aan zijn verplichtingen zou voldoen, maar zij waren niettemin minder populair dan termijncontracten. De redenen hiervoor waren dat transactiekosten bij beleningen aanmerkelijk hoger lagen en dat handelaren met beleningen uitsluitend een positieve positie konden innemen; beleningen konden niet worden gebruikt door handelaren die verwachtten dat de koers zou dalen.

Het tweede deel van dit hoofdstuk gaat in op een ander type risico: het risico van grote schommelingen in de waarde van een portfolio. Ik maak gebruik van de boeken van enkele aandelenhandelaren uit de tweede helft van de zeventiende eeuw om te laten zien hoe zij de beschikbare handelstechnieken gebruikten om dit type risico te beheersen. Opties waren hiervoor bij uitstek geschikt. De optiehandel, die pas vanaf 1660 echt tot ontwikkeling lijkt te zijn gekomen, maakte het voor handelaren mogelijk zich door betaling van een premie te verzekeren tegen bepaalde koers-

schommelingen. De partij die de premie inde, werd juist extra blootgesteld aan koersrisico. Het is belangrijk om hierbij te vermelden dat de ontwikkeling van de optiehandel de aantrekkingskracht van de aandelenmarkt als geheel verhoogde (immers: de optiehandel stelde handelaren in staat beter hun financiële risico's te beheersen), maar dat zij alleen mogelijk was door de aanwezigheid van een grote en diverse populatie van handelaren. Om een optietransactie af te sluiten zijn immers twee handelaren met verschillende risicoprofielen benodigd. De conclusie moet daarom zijn dat de optiehandel geen rol speelde bij het begin van het transitieproces naar een moderne effectenmarkt, maar hij heeft dat proces in een later stadium versterkt.

Hoofdstuk 5 laat zien hoe de handelaars in hun informatiebehoefte voorzagen. De VOC gaf – anders dan tegenwoordig verplicht is voor op aandelen gefinancierde ondernemingen – weinig openheid over haar bedrijfsvoering, maar dit weerhield handelaren er niet van zeer actief in VOC-aandelen te handelen en grote sommen geld in de VOC te investeren. Aan de hand van briefwisselingen van aandelenhandelaren uit verschillende perioden in de zeventiende eeuw toon ik hoe de informatiebehoefte van aandelenhandelaren gedurende de eeuw veranderde. De handelaren van de vroege zeventiende eeuw investeerden overwegend voor de lange termijn. Voor hen volstond het om naar de beurs te gaan en daar het laatste nieuws en de laatste geruchten over de VOC te horen. Op basis van die publiek beschikbare informatie maakten zij hun investeringsbeslissingen.

Het overgrote deel van de transacties uit de tweede helft van de zeventiende eeuw, daarentegen, was gericht op het behalen van koerswinst op de (zeer) korte termijn. Voor de handelaren die deze speculatieve transacties uitvoerden, was het noodzakelijk dat zij net iets eerder dan andere handelaren over informatie beschikten die van invloed kon zijn op de koers. De actieve handelaren van de late zeventiende eeuw bouwden persoonlijke informatienetwerken die hun een informatievoordeel moesten opleveren. De informatievoorziening door de VOC was onvoldoende, maar de persoonlijke informatienetwerken van de handelaren maakten de handelsactiviteit die de moderne markt kenmerkte mogelijk.

Een belangrijk gevolg van de hier beschreven ontwikkeling was dat het voor handelaren zonder uitgebreid informatienetwerk steeds lastiger werd om winstgevende transacties uit te voeren. De handel raakte meer en meer geconcentreerd in handen van een kleine groep 'professionele' handelaren. Niet verwonderlijk waren dit ook de handelaren die toegang hadden tot de selecte bijeenkomsten van aandelenhandelaren.

Zo kreeg de Amsterdamse aandelenmarkt steeds meer kenmerken van moderne aandelenbeurzen, waar uitsluitend professionele handelaren toegang hebben en waar particulieren alleen via een tussenpersoon kunnen handelen. Moderne aandelenbeurzen vinden daarmee hun oorsprong in zeventiende-eeuws Amsterdam.

De ontwikkelingen die leidden tot het ontstaan van een moderne aandelenmarkt werden voor een groot deel geïnitieerd door de handelaren zelf. Toegegeven, de Staten-Generaal speelden een belangrijke rol door het octrooi van de VOC herhaaldelijk te verlengen, de bewindhebbers legden de regels voor overdracht van aandelen vast en de gerechtelijke instellingen van de Republiek droegen bij aan de ontwikkeling van de markt door een juridisch kader te scheppen. Maar de inrichting van de markt, de *market microstructure*, werd bepaald door de handelaren. Zij waren het die met de formulering van de contracten die gebruikt werden in de derivatenhandel, met de inrichting van een marktstructuur die handelaren aanzette hun contracten na te komen en met het opbouwen van informatienetwerken die voorzagen in de leemte van bedrijfsinformatie over de VOC, de markt zodanig tot ontwikkeling lieten komen dat zij de functies van moderne effectenmarkten ging vervullen.

Maar de Republiek heeft nauwelijks de vruchten geplukt van de aanwezigheid van deze markt. Afgezien van de West-Indische Compagnie (WIC) – een onderneming die op financieel gebied een mislukking was – waren er geen bedrijven die gebruik maakten van de markt om vermogen aan te trekken. De overheid maakte evenmin gebruik van de mogelijkheden van de markt. In het geval van de ondernemingen moet de verklaring hiervoor gezocht worden in de relatief kleine kapitaalbehoefte van het leeuwendeel van bedrijven in de Republiek en de angst voor (te) grote overheidsbemoeienis. Voor het uitzetten van overheidsschuld op de effectenmarkt werkte de decentrale staatsstructuur van de Republiek belemmerend. Pas in achttiende-eeuws Londen werden de mogelijkheden die effectenmarkten bieden verder uitgebuit. De Londense markt van de achttiende eeuw overtrof de Amsterdamse, maar zij kon alleen zo snel tot ontwikkeling komen doordat de Amsterdamse markt tot voorbeeld stond.

APPENDICES

Appendix A – Monthly share price Amsterdam chamber VOC, 1602-1698

Sources: SAA, Velters, inv. nrs. 1-4; SAA, Deutz, inv. nrs. 275-6, 291-5, 301; SAA, Merchants' accounts, inv. nrs. 39-40; SAA, PIG, inv. nr. 858; SAA, Notarial card index; SAA, Notaries, inv. nrs. 2238-40, 4131-6; BT, inv. nrs. 112-3, 119K, 119N, 215; PA, microfilms SP 119/36, SP 119/38.

Year	Month	Price
1602	IX	114
	X	
	XI	
	XII	103
1603	I	
	II	
	III	
	IV	106.5
	V	
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1604	I	
	II	
	III	106
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	127.5
	XI	
	XII	
1605	I	140
	II	
	III	105.5
	IV	106
	V	106
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	

1606	I	
	II	
	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1607	I	140
	II	
	III	
	IV	167
	V	
	VI	
	VII	115
	VIII	
	IX	
	X	
	XI	
	XII	
1608	I	120
	II	
	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	130
1609	I	130
	II	132
	III	124
	IV	132
	V	139.5

	VI	130
	VII	124
	VIII	141
	IX	138
	X	127
	XI	125
	XII	
1610	I	125
	II	
	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1611	I	
	II	
	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	167.5
	X	
	XI	
	XII	
1612	I	
	II	
	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	

	XI	
	XII	
1613	I	
	II	
	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1614	I	
	II	
	III	
	IV	
	V	
	VI	200
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1615	I	
	II	
	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1616	I	
	II	
	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1617	I	
	II	

	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	110
1618	I	
	II	
	III	131.5
	IV	
	V	132
	VI	139
	VII	148
	VIII	
	IX	
	X	
	XI	
	XII	152
1619	I	152
	II	
	III	
	IV	158
	V	
	VI	
	VII	185
	VIII	
	IX	
	X	
	XI	
	XII	178
1620	I	
	II	
	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1621	I	
	II	
	III	
	IV	
	V	
	VI	

	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1622	I	
	II	
	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	185
	XII	
1623	I	
	II	
	III	
	IV	178
	V	
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1624	I	
	II	
	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1625	I	
	II	
	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	

	XI	
	XII	
1626	I	
	II	
	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1627	I	
	II	
	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1628	I	
	II	
	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1629	I	
	II	
	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1630	I	
	II	

	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1631	I	
	II	
	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1632	I	177
	II	177
	III	
	IV	
	V	
	VI	
	VII	
	VIII	186
	IX	
	X	
	XI	
	XII	
1633	I	
	II	186
	III	
	IV	186
	V	
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1634	I	240
	II	
	III	
	IV	229
	V	
	VI	

	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1635	I	
	II	
	III	
	IV	240
	V	247
	VI	
	VII	252.5
	VIII	
	IX	
	X	
	XI	235
	XII	
1636	I	
	II	
	III	229
	IV	229.5
	V	
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1637	I	
	II	
	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	297
	XI	
	XII	
1638	I	
	II	
	III	
	IV	351
	V	
	VI	
	VII	
	VIII	
	IX	387
	X	

	XI	
	XII	
1639	I	
	II	385
	III	
	IV	
	V	
	VI	385
	VII	397
	VIII	412
	IX	
	X	
	XI	
	XII	
1640	I	
	II	
	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	405
1641	I	
	II	
	III	481
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	386.7
	XII	
1642	I	
	II	
	III	
	IV	
	V	
	VI	412
	VII	
	VIII	
	IX	453
	X	
	XI	473
	XII	
1643	I	445
	II	

	III	
	IV	
	V	
	VI	468
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1644	I	
	II	
	III	453
	IV	405
	V	416
	VI	424
	VII	416
	VIII	496
	IX	462
	X	456
	XI	
	XII	
1645	I	
	II	
	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1646	I	
	II	
	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1647	I	
	II	
	III	
	IV	468
	V	
	VI	

	VII	466.25
	VIII	
	IX	
	X	
	XI	
	XII	513
1648	I	495
	II	
	III	
	IV	538
	V	
	VI	
	VII	
	VIII	
	IX	539
	X	
	XI	
	XII	
1649	I	
	II	530
	III	525.5
	IV	516
	V	528
	VI	524
	VII	
	VIII	565
	IX	539
	X	
	XI	543
	XII	
1650	I	
	II	537
	III	538
	IV	
	V	
	VI	535
	VII	520
	VIII	525
	IX	
	X	
	XI	
	XII	525
1651	I	529.5
	II	
	III	530
	IV	
	V	
	VI	529.5
	VII	
	VIII	530
	IX	
	X	

	XI	
	XII	532
1652	I	
	II	
	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	438
	X	
	XI	
	XII	
1653	I	
	II	
	III	434
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1654	I	
	II	
	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1655	I	
	II	
	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1656	I	
	II	

	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1657	I	
	II	
	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	340
	X	
	XI	
	XII	365
1658	I	
	II	
	III	
	IV	
	V	
	VI	
	VII	
	VIII	391.5
	IX	
	X	
	XI	
	XII	
1659	I	
	II	
	III	
	IV	
	V	348.5
	VI	
	VII	
	VIII	340
	IX	355
	X	371.83
	XI	
	XII	406
1660	I	426.5
	II	
	III	437.25
	IV	412
	V	
	VI	465.75

	VII	
	VIII	479
	IX	
	X	
	XI	
	XII	
1661	I	
	II	
	III	420
	IV	
	V	433
	VI	449.5
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1662	I	
	II	
	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1663	I	445
	II	
	III	
	IV	482.25
	V	
	VI	
	VII	406
	VIII	385
	IX	415
	X	380
	XI	
	XII	
1664	I	447.5
	II	424
	III	436
	IV	450
	V	443
	VI	
	VII	
	VIII	443.25
	IX	
	X	

	XI	
	XII	454
1665	I	
	II	
	III	
	IV	
	V	
	VI	
	VII	318
	VIII	390
	IX	315
	X	315
	XI	
	XII	
1666	I	354
	II	
	III	
	IV	366
	V	363
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1667	I	
	II	
	III	421.25
	IV	
	V	
	VI	
	VII	422.05
	VIII	
	IX	443
	X	454
	XI	
	XII	
1668	I	
	II	
	III	
	IV	
	V	
	VI	454
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1669	I	
	II	

	III	
	IV	456
	V	463
	VI	
	VII	
	VIII	
	IX	
	X	452
	XI	455
	XII	457
1670	I	
	II	468
	III	
	IV	
	V	
	VI	
	VII	475
	VIII	506
	IX	470
	X	483.25
	XI	
	XII	487.81
1671	I	491.5
	II	492
	III	
	IV	499.75
	V	510.5
	VI	540.75
	VII	545
	VIII	550
	IX	532
	X	499.4
	XI	452.5
	XII	493
1672	I	429
	II	406
	III	370
	IV	311
	V	325
	VI	280
	VII	290
	VIII	340
	IX	342
	X	349
	XI	366.5
	XII	376.5
1673	I	356
	II	347.5
	III	351
	IV	
	V	312.5
	VI	314

	VII	327
	VIII	317
	IX	318
	X	321
	XI	344
	XII	366
1674	I	373.75
	II	375.76
	III	400.39
	IV	420
	V	400
	VI	430
	VII	430
	VIII	442.5
	IX	450
	X	449.75
	XI	450
	XII	450
1675	I	455
	II	454.25
	III	451.64
	IV	
	V	455
	VI	422.8
	VII	447
	VIII	453.5
	IX	459
	X	461
	XI	457
	XII	425
1676	I	448
	II	426
	III	
	IV	430
	V	
	VI	458.5
	VII	
	VIII	
	IX	448
	X	456
	XI	440
	XII	415
1677	I	433.25
	II	429
	III	432.5
	IV	437
	V	440
	VI	440
	VII	
	VIII	431.5
	IX	405
	X	395

	XI	393
	XII	336.17
1678	I	333.33
	II	326.56
	III	310.5
	IV	309
	V	306.5
	VI	347
	VII	340
	VIII	368
	IX	372.5
	X	396.25
	XI	
	XII	
1679	I	390
	II	
	III	400
	IV	
	V	
	VI	
	VII	
	VIII	423.5
	IX	433.5
	X	
	XI	446.63
	XII	439.28
1680	I	434
	II	414.83
	III	
	IV	423
	V	425
	VI	425.5
	VII	424.74
	VIII	
	IX	
	X	443.13
	XI	446
	XII	
1681	I	438
	II	438.5
	III	404.5
	IV	407
	V	409.5
	VI	
	VII	438.75
	VIII	430
	IX	444.5
	X	
	XI	439
	XII	
1682	I	433.5
	II	414.93

	III	417.56
	IV	443.40
	V	457
	VI	448.02
	VII	
	VIII	448.64
	IX	461.37
	X	
	XI	
	XII	412
1683	I	
	II	424.5
	III	412.75
	IV	430.25
	V	
	VI	409.5
	VII	394.75
	VIII	
	IX	445.5
	X	
	XI	
	XII	401
1684	I	
	II	410
	III	412
	IV	413
	V	415
	VI	
	VII	
	VIII	
	IX	467.25
	X	
	XI	486.54
	XII	
1685	I	
	II	
	III	452.25
	IV	
	V	
	VI	
	VII	444.5
	VIII	445.5
	IX	
	X	
	XI	
	XII	464.5
1686	I	
	II	
	III	
	IV	
	V	
	VI	

	VII	
	VIII	471
	IX	472
	X	
	XI	
	XII	
1687	I	476.5
	II	
	III	477.5
	IV	
	V	500.5
	VI	
	VII	485.5
	VIII	499.88
	IX	535.5
	X	
	XI	539.5
	XII	545
1688	I	547
	II	563.5
	III	558.5
	IV	
	V	
	VI	
	VII	546.66
	VIII	460
	IX	473
	X	416
	XI	451
	XII	
1689	I	
	II	442.5
	III	
	IV	
	V	
	VI	
	VII	465
	VIII	441
	IX	442
	X	476.5
	XI	
	XII	
1690	I	
	II	
	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	

	XI	
	XII	
1691	I	
	II	
	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	499
1692	I	510
	II	
	III	516.5
	IV	517.25
	V	502.94
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1693	I	
	II	
	III	
	IV	

	V	
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1694	I	
	II	
	III	
	IV	
	V	
	VI	
	VII	486.5
	VIII	
	IX	
	X	
	XI	
	XII	
1695	I	
	II	
	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	

	XI	
	XII	
1696	I	
	II	
	III	
	IV	
	V	
	VI	
	VII	
	VIII	
	IX	
	X	
	XI	
	XII	
1697	I	
	II	
	III	
	IV	
	V	
	VI	
	VII	
	VIII	488.5
	IX	
	X	
	XI	485
	XII	
1698	I	
	II	511

Appendix B – Dividend distributions VOC, 1602-1700

Sources: Klerk de Reus, *Geschichtlicher Überblick*, Appendix VI. Van Dam, *Beschryvinge* 1A, 433-436. De Korte, *De jaarlijke financiële.*
The dividends are quoted as a percentage of the nominal share capital. The dates mentioned in the second column are the dates on which shareholders could collect their dividend. For the dates of dividend announcements, see Klerk de Reus, *Geschichtlicher Überblick*, Appendix VI.

Year	Date	%	Form
1602			
1603			
1604			
1605			
1606			
1607			
1608			
1609			
1610	April	75	mace
	November	50	pepper
	November 15	7.5	cash
1611			
1612	March	30	nutmeg
	December	57.5	cash *(for those shareholders who had not accepted the distributions in kind)*
1613	August	42.5	cash *(id.)*
1614			
1615			
1616			
1617			
1618	February	62.5	cash *(id.)*
1619			
1620	April 1	37.5	cash
1621			
1622			
1623	April		
	November 15	25	cloves
1624			
1625	August	20	cash
1626			
1627	March 1	12.5	cash
1628			
1629	January 1	25	cash
1630			
1631	January 1	17.5	cash
1632			
1633	January 1	12.5	cash
	December 1	20	cash
1634			
1635	March 1	20	cash
	May 15	12.5	cloves
	August 20	12.5	cloves
1636	March 1	25	cloves
	November 1	12.5	cloves
1637	March 1	15	cloves
	November 1	25	cloves
1638	October 1	10	cloves
	December 1	25	cash
1639			
1640	January 1	15	cloves
	November 1	25	cash
1641	February 1	15	cloves
	November 1	25	cloves
1642	December 15	50	cash
1643	February 1	15	cloves
1644	November 1	25	cloves
	December 1	20	cash
1645			
1646	January 1	22.5	cash

	December 1	25	cash
1647			
1648	January 1	25	cash
1649	January 1	30	cash
1650	January 1	20	cash
1651	January 1	15	cash
1652	January 1	25	cash
1653	January 1	12.5	cash
1654	June 15	15	cash
1655	January 1	12.5	cash
1656	December 1	27.5	cash
1657			
1658	December 1	40	cash
1659	December 1	12.5	cash
1660	November 1	40	cash
1661	November 15	25	cash
1662			
1663	November 15	30	cash
1664			
1665	January 15	27.5	cash
1666			
1667			
1668	June 1	12.5	cash
1669	July 1	12.5	cash
1670	June 2	40	cash
1671	June 1	45	cash
	July 20	15	cash
1672	June 2	15	cash
1673	June 1	33 1/3	government bond - States of Holland and Zeeland
1674			
1675			
1676	February 1	25	cash
1677			
1678			
1679	January 1	12.5	4% VOC bond (unclaimable)
1680	January 1	25	4% VOC bond (unclaimable)
1681	January 1	22.5	4% VOC bond (unclaimable)
1682	July 1	33 1/3	4% VOC bond (unclaimable)
1683			
1684			
1685	February 1	40	cash
1686	May 1	12.5	cash
1687	April 15	20	cash
1688	April 15	33 1/3	cash
1689	April 15	33 1/3	cash
1690	April 15	40	cash
1691	August 1	20	cash
1692	April 15	25	cash
1693	April 1	20	cash
1694	April 1	20	cash
1695	November 1	25	cash
1696	June 1	15	3.5% VOC bond
1697	June 1	15	3.5% VOC bond
1698	June 1	15	3.5% VOC bond
	September 15	15	cash
1699	December 1	15	cash

Appendix C – Glossary

arbitrage – The practice of taking advantage of a price difference between two markets.

bear market – A market characterized by downward share price movements.

bear trader – A trader speculating on downward share price movements.

bull market – A market characterized by upward share price movements.

call option – A *call* option is a right to buy a share at a prescribed price (the *strike price*) on or before a certain date in the future (the expiration). The buyer and seller of an option agree upon the price that has to be paid for this option – the option premium. At the expiration the option can either be *in the money* (spot price above the strike price), *at the money* (spot price equals the strike price) or *out of the money* (spot price below the strike price). The buyer typically chooses to exercise his right if the option is *in* or *at the money*. An option is worthless if it is *out of the money*. Selling an option is generally called *writing* an option.

collateral – Goods or financial assets used as security for a loan.

counterparty risk – The risk that the counterparty to a transaction will not live up to his agreements.

derivative – The word 'derivative' means: a form of something, made or developed from another form. Derivatives in the share trade are those financial dealings that take a share as basis, but that do not necessarily trade the share as such.

discount rate – The discount rate is the return shareholders expect to earn on securities in same risk class. This measure is used to calculate the present value* of future cash flows.

dividend – The distribution of a part of a company's profit to its shareholders. The VOC paid dividends as a percentage of the *nominal* value of a share. When the company announced to pay a dividend of 10% in cash, for example, a shareholder who owned a share with a nominal value of *f* 1,000 would receive *f* 100, no matter at which price the shares traded at the exchange. Apart from distributing cash to its shareholders, the VOC also occasionally paid dividends in kind (i.e. products from East India) and in obligations. In the former case, the shareholders received products at the value of the announced percentage of the nominal value of the share. In the latter case, the shareholders received dividend in the form of an interest paying security.

economic ownership – The economic owner of a VOC share could claim the risk and return of the share, without being entitled to the share in law.

endorsement – The practice of transferring financial securities by putting a signature on the back (*en dos*) of the original contract. The difference between endorsement

and simple assignation was that the endorsee held recourse to previous endorsers. Hence, if the counterparty defaulted on the contract, the endorsee could turn to previous holders of the contract.

equity – The net value of a company after all liabilities have been paid off, i.e. the value of the company stock.

forward contract – A forward transaction is an obligation to buy a share at a prescribed price at a certain date in the future. A forward is a customized contract, which distinguishes it from a *future* contract. Commonly, a forward contract for the trade of a VOC share contained the names of the traders, the value of the underlying share, the contract date, the settlement date, the agreed upon price and a stipulation on possible intermediate dividends.

futures contract – A futures contract is a standardized *forward* contract. Hence, it can be traded more easily on the exchange than a forward.

insinuatie – In the legal system of the Dutch Republic, an *insinuatie* was usually the first step in litigation – a legal notification. In case a conflict arose over a contract (or one of the contracting parties feared that a conflict would arise shortly), a contractor could ask a notary to serve an *insinuatie* upon the counterparty. *Insinuaties* were often used as reminders of the contractual obligations. After having been served an *insinuatie*, a party to a contract could no longer pretend to, for instance, have forgotten about the contract or to not know the counterparty. An insinuated person was obliged to give the notary an answer, but frequently the answers were meaningless: 'I hear and see' or 'I request a copy' were the most common answers. An *insinuatie* did not imply a statutory obligation; it can be seen as an (official) oral warning.

legal ownership – The legal owner of a VOC share was entitled in law to claim the benefits associated with the share. He could, however, transfer the risks and accompanying returns to an *economic* owner.

liquidity – 1) Assets in the form of money, rather than investments.
2) A liquid asset is an asset than can be bought or sold without causing large price movements of the asset. A market for a certain asset is called liquid if trading the particular asset does not cause significant price movements.

long position – A positive holding of a certain stock (i.e. ownership of share with a value larger than zero).

market value – The value that is paid on the market for a specific asset.

nominal value – The value of a share when issued. The total nominal value of all VOC shares together was the company's capital *stock*.

present value – The value *today* of a *future* income stream. This concept is used to estimate the value of future projects. To calculate the present value, the interest (and possibly other factors such as investment risk) are discounted from the in-

come streams of future years. For example, the present value of *f* 100 one year from today, using a 6% discount rate, is *f* 94.34.

price discovery – The process of determining the price of an asset in the marketplace.

put option - A *put* option is a right to sell a share at a prescribed price on or before expiration. Cf. *call option* for further details.

repo – Short for repurchase agreement. In a repo transaction, a moneylender granted a borrower a loan on the security of a VOC share. On the contract date, the borrower transferred the collateral to the lender's account – the latter 'purchased' the share. On expiry, the borrower redeemed the principal of the loan plus interest and he received the collateral back – he 'repurchased' the share. These transactions were not referred to as loans in the printed contracts used on the Amsterdam market. The contracts stipulated a purchase value (which equalled the principal of the loan) and a repurchase value (the principal plus interest).

rescontre – Monthly meetings, generally held on the last Thursday of each month, where derivatives traders came together to mutually settle their claim that were all due on the first day of the next month.

rollover – Reinvestment of a financial instrument at maturity.

secondary market – A market where traders buy assets from other traders, as opposed to buying assets from an original issuer. The 1602 subscription was the *primary* market for VOC shares.

share price – The price of VOC shares was indicated as a percentage of the price that had been paid for the share at the initial public offering in 1602 (1602 price = 100%). The reason for this method of pricing was that there were no fixed denominations of shares; traders could buy a share of certain *nominal value* instead of a certain *number* of shares. After the first distribution of dividends, in 1610, traders also stated the total amount of dividend received on the share.

short position – A negative holding of a certain stock.

short selling – Selling a share one does not possess (also called *writing* a share). Share traders that sell shares short speculate on a downward movement of share prices. Eventually, the trader has to buy the share to be able to transfer it to the buyer, unless he agrees on a money settlement with his counterparty. Nowadays, short selling is a widely used trading practice – although some institutional investors are not allowed to go short on shares. However, financial market regulations oblige short sellers to borrow the share they are selling from a third party (and, consequently, pay the lender interest) during the term of their negative investment. The short selling of VOC shares in the seventeenth century should therefore really be called *naked* short selling; the short sellers neither possessed nor borrowed the shares they sold short.

stock – The total capital owned by the company's shareholders. The VOC stock was formed in 1602, totalling *f* 6,429,588. The stock never changed, as the VOC

never provided investors the opportunity to invest in new shares after that date.

stock exchange – A market where specialized intermediaries buy and sell securities under a common set of rules and regulations through a closed system dedicated to that purpose.[1]

straddle – A combination of a call and a put option. The buyer of a straddle buys the right to purchase a share at or below a specified price at expiration and at the same time the right to sell a share at or above a specified price at expiration. The buyer of a straddle speculates on a price change, but he does not know whether the price will fall or rise. The seller, on the other hand, speculates that the share price will remain within the two strike prices.

[1] Michie, *The London stock exchange*, 3.

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* 2, Archief van Jeronimus Velters
* 234, Archief van de familie Deutz
* 334, Archief van de Portugees-Israëlietische Gemeente te Amsterdam
* 366, Archief Makelaarsgilde
* 4623, Kwijtscheldingsregister
* 5060, Collectie koopmansboeken
* 5075, Archief van de Notarissen ter standplaats Amsterdam

Persmuseum (PA)
* Microfilmed Dutch newspapers from foreign collections

THE HAGUE
Nationaal Archief (NA)
* 1.04.02, Verenigde Oost-Indische Compagnie
* 3.01.04.01, Staten van Holland en West-Friesland
* 3.03.01.01, Hof van Holland
* 3.03.01.04, Collectie civiele processtukken behorende bij het archief van het Hof van Holland
* 3.03.02, Hoge Raad van Holland, Zeeland en (West-)Friesland

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